


2016

The Effects of a Reading Comprehension Intervention Package on Increasing Third Grade Students' Comprehension Skills

Marilyn P. Card
Walden University

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Walden University

College of Social and Behavioral Sciences

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Marilyn Card

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Walden University
2016

Abstract

The Effects of a Reading Comprehension Intervention Package on
Increasing Third Grade Students' Comprehension Skills

by

Marilyn P. Card

MS, Walden University, 2006

BS, University of Maryland University College, 2005

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

School Psychology

Walden University

June 2016

Abstract

Increasing students' reading comprehension involves the use of targeted strategies and effective instruction. Previous research has shown that instruction in individual skills such as vocabulary acquisition, reading fluency, writing, and story mapping help increase students' reading comprehension. However, few studies have explored combining these skills and their cumulative effects, if any, on reading comprehension. The purpose of this quasi-experimental secondary analysis study was to examine the effects of adding a reading comprehension instruction package (RCIP), which includes vocabulary acquisition, reading fluency, and writing, to instruction in story mapping alone. Constructivist theory was used as the theoretical framework for this study. Purposeful sampling was used to recruit 8 students with low reading achievement as indicated by their performances on the Florida Comprehensive Assessment Test. The single-case, multiple-probe design across subjects was used to intermittently collect data, which were the correct responses per 3 minutes using the Curriculum Based Measure-Reading Maze. The data were visually analyzed by looking at data points and trend lines directionality using the percentage nonoverlapping data along with the Cohen's *d* effect size. Although this study showed mixed results and were not statistically significant, it could still contribute to positive social change. The findings have a small to medium effect size impact on students' reading comprehension; 3 out of 4 students who completed the study surpassed their expected goal. The results from this study may provide teachers with tools for improving the foundational reading skills of struggling readers, thus enabling their students to succeed in school and become productive members of society.

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Dedication

I, Marilyn Card, would like to dedicate this most important piece of my academic career to my children, Tiffany, James, and Nicholas Card. My children have been my strength; their love and support have been the foundation to my success, allowing me to have that significant knowledge and power to make a difference, not just in our lives, but in the lives of others as well. Thank you very much, my children, for everything you have done to make my life easier, for doing what you all need to do to be successful in life, symbolizing strengths, knowledge, love, trust, and most of all respect. I also would like to dedicate my work to my mother, Sionita Pontecilla, who has been there for me, for better or for worse, for all the times she has put up with me, and most importantly, caring for me like a wonderful mother would care for her child.

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Chapter 1: Introduction to the Study

Reading comprehension is the process of forming and understanding the meaning from written text. Sencibaugh (2007) indicated that reading comprehension requires individuals to associate meaning with words, recognize and recall specific details, make inferences, and draw and predict outcomes. These skills are typically underdeveloped in individuals who have reading difficulties or reading deficiencies (Boulineau, Fore, Hagan-Burke, & Burke, 2004). The National Center for Learning Disabilities (NCLD; 2014) surveyed 1,980 adults in the United States and found that 84% of adults who responded to the survey believed learning disabilities were a growing concern in the United States. The results showed 53% of the respondents believed that children at the first- to fourth-grade level had learning disabilities. In addition, the NCLD reported that the respondents identified reading comprehension as the primary concern for individuals with reading problems. Based on the result of NCLD's surveys, primary grade level (such as the third grade) students are the best candidates for this study. Researchers have continually looked for an effective instructional method to improve reading comprehension (Gill, 2008; Sencibaugh, 2007). In addition, Rapp, van den Broek, McMaster, Kendeou, and Espin (2007) recognized the importance of designing and implementing a multicomponent intervention to help struggling readers increase their comprehension skills.

Rapp et al. (2007) recommended using interventions that incorporate multiple strategies, which have been shown to be more effective in promoting reading comprehension than merely using a single intervention. Other researchers recommended

the use of multiple interventions to increase reading comprehension (e.g., Begeny & Silber, 2006; Rapp et al., 2007). Therefore, in this study, an intervention with multiple strategies was implemented: the Reading Comprehension Intervention Package (RCIP), which consists of vocabulary acquisition, reading fluency, writing, and the story-mapping technique. The RCIP is a process of teaching students how to build strategies to help them increase their reading comprehension skills.

Story mapping is a tool that used individually and in conjunction with the RCIP. In addition, treatment in which the RCIP components were combined with the story-mapping technique was examined. I hypothesized that the results would identify a process that could be used to impact students' reading comprehension skills. The results of this study might help teachers identify tools that can be used to improve the foundational reading skills of struggling students. Acquiring these skills could be the key to students succeeding academically, and that academic success might help them become productive members of society. Additionally, the results from this study could be used to advocate for, or promote, actions that subsequently lead to social change such as increasing students' reading comprehension, hence leading to decreased drop out. In this chapter, I provide a background on reading comprehension, vocabulary acquisition, reading fluency, writing, and story mapping. The (a) statement of the problem, (b) research questions and hypotheses, (c) independent and dependent variables, (d) nature and purpose of the study, (e) theoretical framework guiding the study, (f) definition of terms, (g) assumptions and limitations, (h) scope of the study, (i) significance of the

study, (j) implications for social change, and (k) the summary are also discussed in this chapter.

Background on Reading Comprehension

Fluency, Vocabulary Acquisition, Writing, and Story Mapping

Antoniou and Souvignier (2007) and the NCLD (2014) reported that approximately 80% of students with learning disabilities have difficulty with reading, notably with comprehension of written text. Hock and Mellard (2005) suggested that students require many skills in order to understand reading materials presented to them. Over the years, many strategy-driven interventions have been studied to determine whether they improve reading comprehension. According to Antoniou and Souvignier, the use of cognitive and metacognitive techniques has been shown to be effective in increasing reading comprehension. Antoniou and Souvignier further emphasized the need for strategies that focus on developing decoding skills and reading fluency in conjunction with improving metacognitive strategies to increase the reading comprehension of individuals who have reading problems. Shuy, McCardle, and Albro (2006) explained that metacognitive strategies provide students with ways to understand fully what they can read. Klauda and Guthrie (2008) indicated that providing intervention that focuses on increasing fluency has a positive impact on comprehension.

Furthermore, past research has shown that reading fluency and vocabulary acquisition increase reading comprehension (M. W. Collins & Levy, 2008; Klauda & Guthrie, 2008; Proctor, Dalton, & Grisham, 2007). Additionally, understanding text requires adequate vocabulary knowledge, which is predictive of the ability to read.

Continued exposure to vocabulary generates a semantic network for increasing reading comprehension (M. W. Collins & Levy, 2008; Klauda & Guthrie, 2008; Proctor et al., 2007). Proctor et al. (2007) also indicated that vocabulary acquisition helps a child increase reading speed, especially if writing tasks are involved (McCurdy, Skinner, Shriver, & Watson, 2008; Proctor et al., 2007).

Writing requires the ability to access prior information and word knowledge, and that, in turn, improves reading comprehension (McCurdy et al., 2008). Moreover, research has indicated that writing skills aid in reading comprehension (McCurdy et al., 2008; Proctor et al., 2007). Alkhaldeh (2011) indicated that reading and writing are correlated and that the two skills appear to affect one another. Writing is frequently used in academic settings, and, in most cases, it can be a good way of organizing thoughts and knowledge. When organizing thoughts, the use of story mapping within reading instruction can increase children's reading comprehension and writing skills, thereby increasing their understanding of materials read (Li, 2007). Li (2007) also observed that students with learning disabilities often have problems grasping the text structure and incorporating story elements when trying to write an organized story.

Li (2007) explained that if a child can learn to map a story while reading and writing, the child can learn how to organize and link ideas into categories. Parodi (2007) explained that writing and reading have a complementary connection when organizing thoughts, and this connection improves students' thinking processes. Parodi also suggested that when teachers practice this combined type of instruction, such as reading

and writing, they should focus on promoting students' development in general using cognitive processes such as story mapping.

Story mapping is an effective instructional strategy for increasing reading comprehension (Sencibaugh, 2007). Story mapping is a graphic organizer, or visual presentation of a story, in which the main components such as characters, settings, goals, problems, solutions, and outcomes are portrayed (Li, 2007). Students can use a graphic organizer to learn how to generate and structure a paragraph, which can help them develop and present their thoughts in an organized manner (Montelongo, Herter, Ansaldo, & Hatter, 2010). The visual presentation used in story mapping helps students organize their thoughts and better understand what they have read.

Understanding written text requires various reading strategies. Combined instructional reading strategies may help students improve their reading comprehension skills. Bui and Fagan (2013) and Rapp et al. (2007) suggested that when developing an instruction solely for reading comprehension, combining vocabulary acquisition, reading fluency, writing, and story mapping may result in relative gains in reading comprehension when compared to the gains achieved with individual strategies. Gill (2008) emphasized that specific instruction for teaching students reading comprehension skills must be developed. She noted that research showed how comprehension skills can be taught effectively, but teachers may not seek out this information, or they may feel overwhelmed by the information available. In addition, Sencibaugh (2007) noted the importance of developing and promoting reading instructional strategies to help students improve their overall reading skills. Sencibaugh and Gill indicated that using multiple

strategies had been identified as helpful in increasing individuals' reading comprehension. However, I did not find many research articles that addressed the impact of using multiple strategies on gains in reading comprehension when implemented in combined instruction.

Previous research has addressed topics such as vocabulary acquisition, reading fluency, writing, and story-mapping strategies that have been shown to be effective in increasing reading comprehension (Fagella-Luby, Schumaker, & Deshler, 2007; Klauda & Guthrie, 2008; McCurdy et al., 2008; Proctor et al., 2007). However, the effects of individual strategies were addressed in those studies. Therefore, this study was used to examine whether the process of implementing the story mapping along and the RCIP, which addresses vocabulary acquisition, reading fluency, and writing, and adding them to the story-mapping technique, would have significant main effects on increasing the third grade students' reading comprehension skills. Additionally, this study was used to identify if there are interaction effects or differences between the RCIP and the story mapping alone. Overall, this study is needed to provide a tool for teachers that may be used to increase the reading comprehension skills of struggling readers, and thus, would make a positive contribution to social change.

Statement of the Problem

Rampey, Dion, and Donahue (2009) reported results from the National Assessment of Educational Progress (NAEP) scores that revealed approximately one third of U.S. students could read below basic level, and others are at or above the proficient level. Kim, Linan-Thompson, and Misquitta (2012) reported that despite

advances in developing effective practices to increase students' reading comprehension, the NAEP (2011) found between 2002 and 2009, reading problems in reading comprehension continued to persist for lower-performing students. Persampieri, Gortmaker, Daly, Sheridan, and McCurdy (2006) indicated that the number of students who have reading problems is overwhelming as reported in the NCES. In addition, many students in the United States who have reading problems are at risk for becoming dropouts, academic failures, and are less productive in the society (Arcia, 2006; Persampieri et al., 2006). Arcia (2006) conducted a study in the reading achievement of students who were suspended and expelled. Results showed that students who have been suspended from school many times have delayed reading achievement and might become school dropouts (Arcia, 2006). Furthermore, as cited in Adult Literacy Service in 2004, in the United States, approximately 40 million adults are illiterate, which affects the economy due to lower productivity (Persampieri et al., 2006).

Furthermore, the Committee on the Prevention of Reading Difficulties in Young Children (1998) as cited in National Early Literacy Panel (NAEP, 2008) reported that approximately 3.5%, or over 2 million, U.S. school children have a reading disability. It has been estimated that roughly 80% of students have learning disabilities (NAEP) Approximately 26% of eighth-grade students cannot read at a basic level according to the National Center for Education Statistics (Rampey et al., 2009). Problems attaining basic literacy skills have been persistent (Begeny & Martens, 2006); therefore, this study was conducted to determine if RCIP, which may have an impact on increasing students'

reading comprehension skills, could be used to reduce reading problems in the United States.

Begeny and Martens (2006) indicated many students in the United States perform below grade level in reading, and reading comprehension seems to be a factor in this low-level performance. Reading comprehension is essential in reading (Karasakaloglu, 2012). Students with good reading comprehension skills have control of their learning. Several researchers (Begeny & Silber, 2006; Rapp et al., 2007) have emphasized the importance of designing reading comprehension instruction that has multiple strategies.

Karasakaloglu (2012) noted that struggling readers using multiple strategies can apply them flexibly in daily reading. Cutting and Scarborough (2006) emphasized the important role of reading comprehension and that effective interventions are needed to help students increase their ability to comprehend text materials. Mahdavi and Tensfeldt (2013) reported that there has been little research to identify the best strategies to increase the comprehension skills of young children with learning disabilities. Most studies pertaining to reading comprehension were conducted with older students rather than younger ones. Students in grades K to 3 have been identified as having a higher number of learning disabilities than any other grade (Mahdavi & Tensfeldt, 2013; Rampey et al., 2009).

Karasakaloglu (2012) emphasized that educators should proceed from simple to complex material to help students increase reading comprehension. Multiple strategies must be taught when scaffolding is used to teach students to comprehend reading materials. Over time, teachers must remove the scaffolds so that students can practice reading on their own (Marcell, DeCleene, & Juettner, 2010). When teachers remove the

scaffolding, students should become independent readers able to manage and control their learning environments (Marcell et al., 2010). However, researchers have not identified effective reading comprehension strategies designed for younger children or instructional tools that would help students become independent readers, especially for those who have learning disabilities (Berkeley, Scruggs, & Mastropieri, 2010; Hayati & Shariatifar, 2009; Klinger, Urbach, Golos, Brownell, & Menon, 2010).

Effective instruction is needed to optimize the children's abilities to comprehend what they read (Proctor et al., 2007). Mariotti (2010) indicated that a good vocabulary is a basic component of reading comprehension. Promoting strong vocabulary acquisition is, therefore, necessary to acquire strong reading skills. Gill (2008) indicated that teachers need to design instruction specifically geared toward teaching reading comprehension skills. Gill emphasized that reading comprehension instruction has been the biggest challenge for educators and has the biggest impact on poor readers. If reading skills do not improve, students are more likely to drop out of school, and the failure of many children to become proficient readers would continue, particularly among those with learning disabilities (De Koning & van der Schoot, 2013; McNamara, Ozuru, Best, & O'Reilly, 2007).

The National Reading Panel Report contained suggestions to implement research on reading instruction that focuses on multiple strategies or a combination of different reading instruction methods (National Institute of Child Health and Human Development [NICHD], 2000). Effective instructional strategies could lead to more progress in helping students increase their reading comprehension skills (NICHD, 2000). The U.S.

Department of Education urged educators to find ways to help students improve their reading skills, particularly in comprehending what they read (Persampieri et al., 2006). Van Norman and Wood (2008) suggested that when teaching and helping students how to read, providing reading comprehension instruction explicitly is important. Explicit instruction helps students learn to grasp techniques that are systematic and consistent and enables the establishment of routine tasks needed to comprehend what they read. In my dissertation study, the RCIP, which has multiple reading strategies and multiple instructional components, was the intervention used to promote the development of reading comprehension skills in areas such as vocabulary acquisition, reading fluency, writing, and story mapping.

As research has shown, if students can read quickly, they develop a wide range of vocabulary, thus promoting proficient acquisition of language. Students who are able to write their thoughts in meaningful sentences using a story map experience greater academic success (Karasakaloglu, 2012; Rapp et al., 2007). Therefore, my study was used to examine whether implementing the story mapping alone, and the RCIP, which consists of vocabulary acquisition, reading fluency, and writing, and then adding the story-mapping technique would have a main effect on increasing students' reading comprehension skills. This study was also designed to determine if interaction effects or significant differences occur between the story mapping alone and the RCIP.

Purpose of the Study

This study was a secondary analysis in which the school oversaw the intervention. The data were collected by the chosen school for the purpose of examining the effect of

the RCIP and the story mapping. The purpose of this study was to investigate whether implementing the story mapping alone and the RCIP, combined with story mapping, increases students' reading comprehension. I examined whether there were significant interaction effects and difference in students' reading comprehension due to the implementation of story mapping alone, and the RCIP intervention. For this quantitative study, a single case quasi-experimental design focused on using the multiple probe design (MPD) across subjects was employed.

Research Questions and Hypotheses

Four research questions were formulated to guide this study. They were answered employing hypothesis testing.

Research Question 1

What is the main effect of implementing RCIP as an instructional strategy on students' reading comprehension as measured by the CBM-Reading Maze?

H1₀. Implementing RCIP as an instructional strategy, which consists of vocabulary acquisition, reading fluency, writing, and story mapping instruction, has no statistically significant main effects on students' reading comprehension as measured by the CBM-Reading Maze.

H1_a. Implementing RCIP as an instructional strategy, which consists of vocabulary acquisition, reading fluency, writing and story mapping instruction, has statistically significant main effects on students' reading comprehension as measured by the CBM-Reading Maze.

Research Question 2

What is the main effect of implementing story mapping alone on students' reading comprehension?

H2₀. Implementing the story mapping alone as an instructional strategy has no statistically significant main effects on students' reading comprehension as measured by the CBM-Reading Maze.

H2_a. Implementing story mapping alone as an instructional has statistically significant main effects on students' reading comprehension as measured by the CBM-Reading Maze.

Research Question 3

What are the interactive effects of implementing the instructional strategies of RCIP and story mapping on students' reading comprehension?

H3₀. Implementing RCIP and story mapping as instructional strategies, which consist of vocabulary enhancement, reading fluency, and writing, has no statistically significant interaction effects on students' reading comprehension as measured by the CBM-Reading Maze.

H3_a. Implementing RCIP and story mapping as instructional strategies, which consist of vocabulary enhancement, reading fluency, and writing, has statistically significant interaction effects on students' reading comprehension as measured by the CBM-Reading Maze.

Research Question 4

What are the differences in students' reading comprehension scores when implementing the RCIP compared to story-mapping instruction alone?

H4₀. There are no statistically significant differences in students' reading comprehension, as measured by the CBM-Reading Maze, when implementing the RCIP, which consists of vocabulary acquisition, reading fluency, writing and story mapping instruction, when compared to implementing story-mapping instruction alone.

H4_a. There are statistically significant differences in students' reading comprehension, as measured by the CBM-Reading Maze, when implementing the RCIP, which consists of vocabulary acquisition, reading fluency, writing and story mapping, when compared to implementing story-mapping instruction alone.

Nature of Study

This study is quasi-experimental in nature. According to Choo, Eng, and Ahmad (2011), a quasi-experimental study involves a non randomized control group, which allows manipulation of variables, but does not invoke the principles of random selection, random assignment, and use of a control group. In addition, a quantitative method employing a single case quasi-experimental design utilizing the MPD was used to examine the effects of the story-mapping technique and the RCIP on third-grade students' reading comprehension. A purposeful sample of eight third-grade students from a metropolitan area in Central Florida was recruited. The primary selection criterion was that the participants have Level 2 or lower reading scores on the FCAT, as defined in

Florida Statute 6A-6.054 K-12 Student Reading Intervention Requirements (Florida Department of Education, 2012/2013).

The CBM-Reading Maze was first used to obtain baseline data on the participants' reading comprehension skills. Thereafter, the students' progress was measured intermittently during the study. The first measurement was taken at the end of the story-mapping intervention. A second measurement was taken after the delivery of each instructional component of the RCIP. The single-subject MPD was used to collect data during both the baseline instruction (i.e., story mapping) and at the completion of instructional components of the RCIP. The MPD assisted in determining if there were significant increases in participants' reading comprehension when story mapping was implemented in combination with RCIP. For this study, a single-case experimental design (SCED) was used. The SCED was organized in a manner that provided a sequence of data; repeated measures within and between subjects were employed to facilitate comparisons, which allows for controlling threats to internal validity (Wendt, 2009). The SCED is a repeated-measure method used to assess participants' responses at different times during the duration of the story mapping alone and the RCIP interventions. The SCED facilitates a comparison of students' performances during the baseline condition and the treatment phases (R. H. Horner et al., 2005). The data to assess the participants' reading comprehension were collected using the CBM-Reading Maze. The CBM-Reading Maze was used in conjunction with the AIMSweb software, which generated a reading comprehension score and graphs. The outcome scores are in the graph and were

monitored for continued progress during the study. The AIMSweb is further explained in Chapter 3.

Independent and Dependent Variables

The independent variables are the components of RCIP and story mapping. The story-mapping instruction was implemented first, and then the RCIP. The RCIP was presented by first implementing the vocabulary acquisition and writing, followed by building reading fluency and writing. The CBM-Reading Maze was administered to collect data based on the number of correct responses per 3 minutes. The MPD was used to collect data intermittently during baselines, at the end of the story-mapping instruction, and after each implementation of the instructional components of the RCIP. The collected baseline and treatment conditions (e.g., story mapping and the RCIP) data from the CBM-Reading Maze is the outcome scores for dependent variables. The outcome scores were quantified using nonparametric measures such as the percentage of non overlapping data (PND) when assessing the changes in students' reading comprehension skills. The PND was used to calculate the effectiveness of the story mapping alone and the instructional components of the RCIP. Visual analysis was possible by graphing the scores. In addition, the PND is scaled from zero to 100%, given that scores less than 50% are considered unreliable or ineffective treatment, 50% to 70% are questionably or minimally effective, 70% to 90% are fairly effective or moderately effective, and 90% or higher are highly effective (Campbell, 2004; Wendt, 2009). The percentage score is calculated by dividing the total number of points earned by the amount of data collected, and then multiplying by 100 (Bui & Fagan, 2013). The PND was identified using the

highest baseline point and counting the number of interventions that are above it.

Additionally, the Cohen's *d* effect size was used in conjunction with the PND when visually analyzing the results of this study. More information on calculating the effect size is available in Chapter 3.

Furthermore, Sullivan and Fein (2012) reported the effect sizes that Glass V measured to find out the differences between groups. Glass V effect sizes denoted the following percentage of non overlapping data: 0% as no difference; 15% as small effect size; 33% as medium effect size; 47%, 55%, 71%, and 81% as large effect size. If data overlap completely (100%), then there is no difference in the effect of intervention or treatment. Moreover, Sullivan and Fein explained the absolute effect size, which is "the difference between the average or mean, outcomes in two different intervention groups" (p. 279). For this study, the PND, the Glass V effect sizes, and absolute effect size were used to determine the effectiveness of the story mapping technique and the RCIP.

Following is a discussion of the theoretical framework upon which this study was based.

Theoretical Framework

The theoretical framework for this study is the constructivist theory of cognitive psychology, which focuses on how the processes of understanding and activating prior knowledge influence learning (Kintsch, 2005). In accordance with constructivist theory, Kintsch (2005) suggested that when individuals exhibit analytical problem solving, they learn to read fluently and build their automatic understanding of the information presented. The constructivist model places emphasis on connecting or integrating how students understand and organize new information (Espin, Cevalasco, van den Broek,

Baker, & Gersten, 2007). Teaching students to understand what they read and how to organize the new material could be useful when activating their background knowledge, in which their cognitive processes were being used. Individuals' cognitive processes increase as their awareness of their mental processes such as perception, reasoning, and judgement increase (Kintsch, 2005). The constructivist theory is relevant to this study based on the following three principles:

1. The role of prior learning is important in acquiring new knowledge. Prior knowledge is required to develop reading skills and comprehension.
2. Learning is contextual: One learns in relationship to what one already knows or believes.
3. Learning is an active process, as is reading comprehension.

Importance of Prior Knowledge

Prior knowledge is necessary for acquiring new knowledge and for developing the skills that aid reading comprehension. According to constructivist theory, individuals integrate their prior knowledge with new knowledge. When new information is presented, students need to access their prior knowledge in order to make connections to the new material, allowing them to foresee the meaning of what they have been reading. Prior knowledge is essential because it helps in pre reading activities as well as in other reading activities involved in the RCIP. The RCIP is related to the theory of constructivism because the intervention requires students to use multiple skills in order to construct knowledge and derive meaning. The multiple strategies involved in the RCIP include teacher-led questioning (i.e., question-and-answer [QAR] sessions), making

predictions and inferences, self-questioning, peer reading strategies, silent reading and reading aloud, self-monitoring, graphing, using the dictionary, paraphrasing, and summarizing. These strategies have been shown to be effective in increasing students' reading comprehension skills, and they were used for constructing, integrating, and accessing prior knowledge when each instructional component (vocabulary acquisition, reading fluency, writing, and story mapping) was introduced during the implementation of the RCIP (Karasakaloglu, 2012; Liang, Peterson, & Graves, 2005; Marcell et al., 2010; Rapp et al., 2007).

Additionally, prior knowledge is essential in reading, particularly when trying to understand text materials. Hayati and Shariatifar (2009) emphasized that when teaching language skills involving reading, activation of relevant knowledge is needed. When relevant knowledge is activated, students can relate to their reading. In the RCIP, students are exposed to different sequences to complete a task, requiring them to use their knowledge of previously learned materials and integrate it into new knowledge (Kolić-Vehovec, Zubković, & Pahljina-Reinić, 2014). In the RCIP, students construct different tasks involving multiple strategies. Activating prior knowledge is important to understand fully the reading text materials. Kolić-Vehovec et al. (2014) added that students need reading strategies. The suggested strategies included metacognitive knowledge, which has been shown to be effective because relevant background knowledge must be activated, which in turn increases self-monitoring skills. Self-monitoring skills are included in the RCIP as one of the processes for helping students increase reading comprehension. When students use self-monitoring, they validate their personal

experience, which lets them make connections with the text materials, thus activating their prior knowledge (Kolić-Vehovec et al., 2014). Further, research has shown that the story mapping word web helps students make connections when integrating and constructing the new information because they access their prior knowledge (Bui & Fagan, 2013). Bui and Fagan (2013) suggested that a meaning within the content is governed by the text, the reader, and by students activating their prior knowledge. Constructivist theory emphasizes that understanding the idea helps readers build their own understanding while reading the text materials.

Learning is Contextual

People learn relative to what they already know or believe. Constructivist theory holds that individuals form their knowledge by setting goals, building coherence, and explaining information using different strategies (Rapp et al., 2007). Rapp et al. (2007) indicated that when building coherence, a person must apply his or her prior knowledge and establish goals to increase comprehension performance. When understanding written material, the exact nature of building coherence is based on how it is read, and the perceptions obtained from reading. Understanding the nature of coherence is important. Coherence is an important factor in how individuals learn and understand how and why events occur in a consistent manner (Rapp et al., 2007).

Individuals gain a better understanding of information when using multiple comprehension strategies instead of just one because learning is contextual (Gill, 2008; Rapp et al., 2007; Sencibaugh, 2007). Using multiple strategies has been shown to help struggling readers effectively increase their reading comprehension (Bui & Fagan, 2013;

Karasakaloglu, 2012; Shuy et al., 2006). Shuy et al. (2006) explained that metacognitive strategies allow students to understand fully what they read. Hock and Mellard (2005) suggested that increasing reading comprehension requires many skills. Having students learn different strategies allows them to navigate the content of the text, thus teaching and helping them increase their capacity to learn to read (Bui & Fagan, 2013; Rapp et al., 2007). The use of multiple strategies has been identified as the biggest influence on increasing comprehension skills in which students acquire background clues about the key concepts in the text (Bui & Fagan, 2013). For example, students using story mapping are making connections based on their prior understanding of the reading text when they apply those connections to the newly learned materials. The multiple strategies involved in story mapping and the RCIP such as prediction, making inferences, organizing, and summarizing, all help students develop the coherence needed to increase their understanding of the reading text. Constructivist theory specifies that readers build their own meaning while reading. Employing multiple strategies in the process of their reading allows them to learn relationships based on what they already know (Brenna, 2013; Bui & Fagan, 2013; Cantrell, Almasi, Carter, Rintamaa, & Madden, 2010).

Learning as an Active Process

According to constructivist theory, learning is an active process, as is reading comprehension (Kintsch, 2005). The RCIP contains multiple components with different strategies to increase reading comprehension. Using the RCIP, students are actively engaged in their learning process by constructing, integrating, and using multiple strategies (e.g., pre reading, repeated reading, silent and reading aloud, questions and

answers, use of a dictionary, making predictions and inferences, summarizing), which has been proven effective in helping increase reading comprehension skills (Bui & Fagan, 2013; Karasakaloglu, 2012; Phillips, 2008; Rapp et al., 2007). Constructivist theory can be applied to the instructional components of RCIP. For example, when acquiring vocabulary, students learn new words and learn to construct new ideas or knowledge based on the meanings of these words. Students learn to associate words with their life experiences by creating meaning, which leads to a better understanding of new words presented to them. Karasakaloglu (2012) emphasized that in reading, students make sense of the meaning of a word by associating and constructing the information within the text. Karasakaloglu also emphasized that teachers should provide instructional strategies that range from simple to complex in order to encourage students to be more in control of their learning operations. Hence, having students involved in their learning process is important, particularly when seeking meaning in text materials, so that they can learn to integrate and construct ideas related to the information presented to them (Espin et al., 2007). Therefore, when learning to read, students should be engaged in different activities using multiple strategies to enhance their reading comprehension skills (Gill, 2008). Naseri and Zaferanieh (2012) suggested using a variety of strategies to process information increases individuals' reading comprehension skills by encouraging them to apply critical thinking. When different cognitive processing strategies are used, individuals tend to continue applying critical thinking, thus giving them opportunities to investigate the information they are trying to understand. Snape and Fox-Turnbull (2011) suggested that learning can be achieved through students' interaction with reading

material. When students interact and participate in the learning process, they become active learners. They learn to facilitate critical thinking, solve problems, and work collaboratively to enhance the learning process; in short, they learn to become independent readers (Snape & Fox-Turnbull, 2011). As with the constructivist approach, learning is an active process that helps students acquire knowledge and perform at a higher academic level (Phillips, 2008).

Definition of Terms

Curriculum-based measurement (CBM): CBM is also called a general outcome measure of students' performances of basic skills and is designed to precisely and proficiently identify academic growth in reading and written expression as well as mathematics and spelling (Christ & Silbergitt, 2007).

Reading comprehension: The decoding and language comprehension skills that individuals use to communicate and understand ideas and relationships within the text or a passage (Takala, 2006).

Reading Comprehension Intervention Package (RCIP): RCIP is a multiple-component, instructional process with different instructional strategies that are used to focus on strategic and content approaches to reading comprehension. I developed the RCIP used in this study based on instructional components suggested by many researchers. This RCIP has multiple strategies and components of reading and writing (e.g., vocabulary acquisition, reading fluency, and writing in addition to the story mapping technique). Research has shown that developing or designing effective instruction for reading comprehension requires the use of multiple strategies such as word

recognition, decoding, story retelling, pre reading strategy, and implementing reading comprehension strategies before, during, and after reading (Berkeley et al., 2010; Brenna, 2013; Bui & Fagan, 2013; Gill, 2008; Klinger et al., 2010; Liang et al., 2005; Van Keer & Vanderlinde, 2010). In addition, in designs of instruction for reading comprehension, the delivery of instruction must be explicit and direct and include an explanation, modeling, guided practice cooperative learning, and multiple strategies (Cantrell et al., 2010; Gregory & Cahill, 2010; Mahdavi & Tensfeldt, 2013; NICHD, 2000). Multiple strategies such as self-monitoring, identifying the main idea, story map, scaffolding, which is gradually removed to ensure independent learning, discussion, making predictions and inferences, activating background knowledge, using a graphic organizer, active participation, and QAR are all researched-based strategies (Brenna, 2013; Kim et al., 2012; Marcell et al., 2010; Rapp et al., 2007; Sencibaugh, 2007). The identified strategies are organized and discussed in Chapter 3.

Reading fluency: The ability to read accurately with automaticity (Berninger, Abbot, Vermeulen, & Fulton, 2006; Cates, Thomason, Havey, & McCormick, 2006).

Story mapping: A visual representation and organization of material that consists of sequentially identifying characters, setting, goals, problems, solutions, and outcomes (Boulineau et al., 2004; Li, 2007; Takala, 2006).

Vocabulary: The ability to decode and understand words (Nash & Snowling, 2006). Vocabulary is a function of receptive and expressive language (McCallum, Sharp, Bell, & George, 2004).

Writing: A system that represents letters or symbols forming sounds and words, which are stored in long-term memory for later recall (Sparks, Javorsky, Patton, Ganschow, & Humbach, 2008). In the RCIP, students wrote down the meaning of words and summarized what they read.

Assumptions and Limitations of the Study

Assumptions

In this study it was assumed that the remediation teacher (RT) administered the RCIP protocol competently in the classroom. It was also assumed students would be willing to volunteer for, and engage in, the intervention process. The school oversaw this study as an extra intervention for students, and it was assumed the study was implemented with fidelity. In addition, it was assumed that any stresses experienced by the participants affected performance, which may have affected the outcome of the study. It was assumed that participants had some reading skills that they could complete the tasks when implementing the story mapping and the RCIP. It was assumed that the classroom environment would be the same as the school setting, and that delivery of the intervention was consistent (Fagella-Luby et al., 2007).

Limitations

There are several potential limitations that apply to this study. First, I had no control of whether participants participated or withdrew from this study because the study involved a secondary analysis. The school oversaw the implementation of this study, and they provided the de-identified dataset for analysis. The number of participants may be insufficient for conducting the data analysis. However, research has shown that three to

eight participants is sufficient when conducting a single case experimental design (Gillis & Butler, 2007). The time spent on the instruction may not have been appropriate or long enough to affect reading comprehension effectively. The participants received the remediation reading routine for 30 minutes (Florida Center for Reading Research [FCRR], 2010). The time may have been too short or too long, causing them to feel incapable of doing the assigned intervention. The FCRR suggested the number of minutes per day allocated to RCIP should be 10 minutes, 20 minutes, or 30 minutes when providing reading intervention. Thirty minutes was chosen because it seemed appropriate for small group reading in this study.

Other limitations may include that due to a small sample size, the results may not be representative of the school population of children who meet the study criteria. In addition, the internal validity of the SCED may cause serial dependence; “subsequent assessment may be influenced by earlier one” (Wong, 2010, p. 288).

Scope of the Study

I used a quasi-experimental quantitative method and single-subject MPD with eight participants. The participants in this study were third-grade students who scored at Reading Level 2 or below, based on their FCAT scores. The effect size for this study was based on information obtained from Lipsey and Wilson’s (1993) meta-analysis of effect size for reading instruction strategies for elementary students. Research has shown that when conducting studies with the quasi-experimental, single-case experimental design, three to eight participants are sufficient to detect a large effect size (Gillis & Butler, 2007). Researchers also have shown that the SCED commonly requires fewer participants

(Rassafiani & Sahaf, 2010; Wong, 2010). Typically, a small sample is used when researchers implement multiple interventions using the SCED to examine the definite outcome of the effectiveness of the treatment condition (Tankersley, Harjusola-Webb, & Landrum, 2008). Wong (2010) suggested that the SCED can be first used with a small sample when implementing new interventions. Hence, this study contained eight participants recruited using purposeful sampling to account for potential attrition effects. As a study using single-subject design, strong internal validity was possible due to repeated measures. It should be noted, however, that Stagliano and Boon (2009) indicated that small sample size limits generalizability of the results. External validity may also be questionable due to small sample size.

Significance of the Study

Researchers have shown that large numbers of students in the United States have been diagnosed with reading problems (Boulineau et al., 2004; Kaplan & Walpole, 2005). The purpose of this study was to quantitatively examine whether implementing story mapping and RCIP as independent interventions positively impacted students' reading comprehension skills. In addition, the study was used to examine whether combining the RCIP with story-mapping, instructional strategies increased students' reading comprehension (Kolić-Vehovec et al., 2014).

The impact of the RCIP on reading comprehension was the phenomenon of interest in this study. Although I could not find literature about past studies that discussed the use of RCIP, vocabulary acquisition, reading fluency, writing, and story mapping have been associated with increases in children's reading comprehension skills (Douglas,

Ayres, Langone, & Bramlett, 2011). Vocabulary acquisition, in conjunction with the use of cognitive and metacognitive techniques, effectively helps students increase their reading comprehension. Lo, Cooke, and Pierce Starling (2011) reported that reading fluency was a strong predictor of reading comprehension. Douglas et al. (2011) reported that the graphic organizer, which is identical to story mapping, is an effective tool for increasing reading comprehension. Berninger et al. (2006) discussed the connections between written language and reading comprehension. Despite the findings from studies in which it was demonstrated that singular strategies effectively improve reading comprehension, little research has been conducted on combined multiple strategies with regards to the implementation of the RCIP in increasing students' reading comprehension skills, especially for those students in the primary grade levels (Gill, 2008; Mahdavi & Tensfeldt, 2013; Rapp et al., 2007; Sencibaugh, 2007).

Wooley (2008) also suggested that different approaches to teaching reading comprehension are needed in order to help struggling readers, especially those with learning disabilities. The RCIP is a multicomponent instructional strategy that includes instruction in different reading skills such as vocabulary acquisition, reading fluency, writing, and story mapping. I developed the RCIP based on the suggestions of many researchers. They suggested that using multiple strategies is essential when developing effective instruction to increase reading comprehension skills. In my study, as a result of implementing the RCIP, students learned how to construct, integrate, and learn the different strategies (e.g., question and answer, collaboration, organization, prereading, repeated reading, postreading, making inferences and predictions, word searching,

finding meaning and main ideas, modeling, explaining, paraphrasing, clarifying, graphing, self-monitoring, reading silently, reading aloud, retelling, providing explicit or direct instruction, summarizing, scaffolding, activating background knowledge, independent learning, graphic organizer, and guided instruction) that relate to critical thinking and effective use of those strategies improved comprehension skills (Bui & Fagan, 2013; Gill, 2008; Gregory & Cahill, 2010; Kim et al., 2012; Mahdavi & Tensfeldt, 2013; Marcell et al., 2010; NICHD, 2000; Rapp et al., 2007; Sencibaugh, 2007).

Implications for Social Change

Social change in this study refers to identifying a process that could be used to help students increase their reading comprehension. This study could be a resource to help teachers provide students with tools that are foundational to becoming productive members of society. Results could be an added contribution to the current literature, leading to social change by assisting educators in the improvement of instruction in reading comprehension.

In addition, use of the RCIP as an instructional strategy might lead to improved grade point average (GPA) and a decrease in the number of high school dropouts, in turn enabling more students to become productive members of society. Increasing the reading skills of students might help them find jobs more easily later in life. They might also contribute to greater productivity by the general population, thereby increasing economic growth (Pennington, Ault, Schuster, & Sanders, 2010).

The RCIP may provide students opportunities to read frequently and organize their thoughts, thereby leading them to fully comprehending text materials. The RCIP is a

multimodal comprehension strategy; it may help deepen students' understanding when reading text (Brenna, 2013). Moreover, it is hoped that the study participants will benefit from their participation and develop skills needed to become proficient readers. Finally, because the published research in reading comprehension instruction for younger children is limited, the RCIP could be an important addition to the literature about this population.

Summary

Studies have been conducted to investigate strategies for improving reading comprehension, yet a large number of students in the United States continue to have low level skills in reading (Kim et al., 2012). Educators and researchers have expressed the need for developing effective interventions to help students increase their reading comprehension skills (Antoniou & Souvignier, 2007; Rapp et al., 2007). The Department of Education (DOE) has urged educators to find ways to reduce the number of children identified with reading problems, particularly in reading comprehension. Improving students' reading comprehension skills has been a goal of the DOE to help reduce the number of students referred to special education (Antoniou & Souvignier, 2007). Researchers have shown that developing the individual components of reading, such as decoding skills, leads to increases in children's reading comprehension skills (Antoniou & Souvignier, 2007). However, I found no literature that has addressed the use of multiple strategies such as combining vocabulary acquisition, reading fluency, writing, and adding them to the story-mapping technique to improve reading comprehension. Rapp et al. (2007) explained that a multicomponent intervention strategy may address the different types of reading problems. The multiple intervention strategies that employ

multiple approaches may be more powerful in helping students increase their reading comprehension than using one single intervention (Begeny & Silber, 2006; Bui & Fagan, 2013; Mahdavi & Tensfeldt, 2013). Gaps in the literature concerning effective instruction for reading comprehension continue to exist.

Additionally, there is a gap in the literature regarding the empirical evidence of students' relative gains in reading comprehension resulting from combined instructional strategies. The purpose of this secondary analysis, quasi-experimental study was to implement the RCIP, which consists of instruction in vocabulary acquisition, reading fluency, writing, and story mapping, with single subject design. Purposeful sampling was used to generate the sample for this study. The participants were individuals who tested at Reading Level 2 or below. The MPD across subjects was used to collect data using the CBM-Reading Maze.

This study was designed to answer four research questions:

1. What is the main effect of implementing RCIP as an instructional strategy on students' reading comprehension as measured by the CBM-Reading Maze?
2. What is the main effect of implementing story mapping on students' reading comprehension?
3. What are the interactive effects of implementing the instructional strategies of RCIP and story mapping on students' reading comprehension?

4. What are the differences in students' reading comprehension when implementing the RCIP compared to story-mapping instruction alone?

Chapter 2 contains descriptions of research on reading comprehension. In addition, the theoretical framework for the study is further explained, addressing how instruction in the following areas affects reading comprehension: vocabulary acquisition, reading fluency, writing, and story mapping. The literature review contains a summary of interventions, assessments, implications of the study on reading comprehension, and a discussion of the literature related to differing methodologies used to help students increase their reading comprehension. In Chapter 3, the methodology for this study is discussed, including descriptions of participants, settings, procedures, instrumentation, threats to internal validity, data collection and analysis, and ethical measures taken to protect participants.

Chapter 2: Literature Review

Introduction

Berninger et al. (2006) emphasized that “phonological awareness, alphabetic principle and phonological decoding, and fluency training” are important in building comprehension skills (p. 334). The National Reading Panel (NRP) noted the importance of including these skills in reading instruction to increase children's reading abilities (NICHD, 2000). The NAEP (2011) showed that fourth-grade students have lower scores in basic reading skills than expected for their grade level. Begeny and Martens (2006) reported that 37% of fourth-grade students were reading below grade level. Without effective reading skills, children are likely to experience deficits in their reading comprehension (NAEP, 2011).

Kaplan and Walpole (2005) reported that there are a number of studies documenting the extent of reading comprehension problems in the United States and that between 4% to well above 60% of American children in public schools have poor reading comprehension skills. The National Center for Education Statistics stated in 2009 that “only 33% of fourth-grade and 32% of eight-grade students were reading at a proficient level or above” (as cited in Neddenriep & Hale, 2010, p. 1). The DOE has urged educators to provide instruction that more effectively increases comprehension skills (Persampieri et al., 2006; Rapp et al., 2007). Reading problems among students in the educational system are often a result of comprehension problems; therefore, effective instruction in reading comprehension is needed (Begeny & Silber, 2006; Rapp et al., 2007).

There are a number of negative outcomes for individuals who do not develop adequate reading comprehension skills. Studies have shown that students who have reading problems are more likely to drop out of high school. Hence, they become less productive in society (Apthorp, 2006; McCurdy et al., 2008). Ongoing reading problems justify the need for developing reading comprehension interventions that enable students to develop skills and routinely practice what they learn (Cantrel et al., 2010).

Many researchers have suggested developing instruction that consists of multiple strategies in order to help individuals improve their reading comprehension skills (Block, Paris, Reed, Whitely, & Cleveland, 2009; Brenna, 2013; Bui & Fagan, 2013; Cantrell et al., 2010; Gregory & Cahill, 2010). Although there are many studies on reading comprehension, there have been few studies about improving children's reading comprehension skills using multiple approaches to teaching reading strategies. Furthermore, few studies have focused on reading comprehension strategies for younger children (Gregory & Cahill, 2010; Mahdavi & Tensfeldt, 2013; Proctor et al., 2007). Therefore, the need to develop reading comprehension instruction with multiple strategies persists.

The remainder of this chapter contains discussions of the strategy used to conduct the literature review, the theoretical foundation for this study, and the variables of interest in this study such as vocabulary acquisition, reading fluency, reading comprehension, writing, and the story-mapping technique. These variables are discussed as they relate to improving individuals' reading comprehension skills. Additionally, the rationale for implementing the RCIP, the importance of assessment methods using the curriculum-

based measurement-reading maze, the summary, and a transition to Chapter 3 will be presented.

Literature Search Strategy

The information for this literature review was obtained from the Walden University Library using multiple databases such as EBSCOhost, PsycINFO, PsycARTICLES, PsycBooks, SocIndex Full Text, Mental Measurement Yearbook, and Academic and Search Premier. The majority of the peer-reviewed journal articles selected for the literature review was published between the years 2004 and 2014; however, a seminal study on the National Reading Report from the NICHD (2000) was included due to its significant value in emphasizing the need for research on instructional strategies designed to increase reading comprehension. The study by Rosenshine and Meister (1993) is also a seminal work and shows the importance of providing multiple-strategy instruction to increase reading comprehension. Another seminal study by D. Horner and Baer (1978) on the multiple probe design (MPD) was included because these authors developed the design. The keywords and topics used to collect peer-reviewed journal articles for this dissertation included *reading comprehension intervention, graphic organizer, cognitive psychology theory, constructivism, constructivist model, response to intervention, multitiered system of support, curriculum-based measure, Florida reading research, Florida reading benchmark, words read correctly per minute, vocabulary and reading comprehension, repeated reading, story mapping, reading fluency, reading comprehension, writing, single-subject design, multiple baseline design, and MPD.*

Theoretical Foundation

The theoretical orientation for this study is grounded in cognitive psychology, which focuses on constructivism. Cognitive psychology is a discipline that focuses on how people gather knowledge or information, and how they acquire knowledge (Lu & Doshier, 2007). Cognitive psychology describes how people use their mental cognition with regard to “perceiving, learning, remembering, thinking, reasoning, and understanding” a concept (Lu & Doshier, 2007, p. 2769).

The constructivist theory is a cognitive theory that is relevant for this study because it pertains to mental representation, cognition, and application of prior knowledge. The constructivist model highlights the idea that individuals construct their knowledge by setting goals, building coherence, and explaining information (Rapp et al., 2007). In addition, because the constructivist model focuses on mental representation of individuals’ background knowledge, the premise of the model emphasizes the importance of individuals connecting their understanding about how events are organized (Antoniou & Souvignier, 2007; Block et al., 2009; Cantrell et al., 2010; Lu & Doshier, 2007; Rapp et al., 2007).

In addition, constructivism focuses on connecting and integrating individuals’ background knowledge to newly learned information; multiple strategies are needed to process the information. Researchers have recommended the application of multiple strategies when developing reading comprehension instruction (Bui & Fagan, 2013; Gregory & Cahill, 2010; Kim et al., 2012; Mahdavi & Tensfeldt, 2013; Marcell et al., 2010). Possessing multiple strategies, particularly when using evidence-based reading

strategies, increases students' critical thinking, which can lead to improved comprehension skills (Marcell et al., 2010).

Students were given multiple strategies to help them understand what they read. Some of the strategies used for this study consist of using a dictionary to look for the meanings of unknown words, rereading the sentences to get a better understanding of the whole context, writing a sentence or word meaning for better understanding, and answering questions from the story-mapping technique. When reading, the participants use and develop cognitive strategies in order to learn and process the information (McNamara, 2007). Furthermore, students get involved in many tasks when they read and write. They make inferences and access their prior knowledge about the reading materials (Ghelani, Sidhu, Jain, & Tannock, 2004). During the RCIP instructional time, students integrate what they have learned by using different strategies (e.g., prereading, repeated reading, postreading, making inferences, QAR, summarizing) to increase their reading comprehension skills. Johnston, Barnes, and Desrochers (2008) emphasized the importance of integrating information to improve reading comprehension skills. Hence, the constructivist theory serves as a foundation for implementing the RCIP because students use their metacognition skills to build their own meaning and understanding of the events in the text materials.

Understanding events within the reading text materials requires mental representation and cognition, which allow readers to develop relationships between prior knowledge and unlearned materials. This can be facilitated through the use of story mapping in which individuals answer questions (e.g., what, where, when, why, and how)

pertaining to a passage or a story, and then summarize the story according to their understanding (Johnston et al., 2008). My study also incorporated other strategies such as repeated readings, paraphrasing, self-monitoring, and drawing conclusions. The participants enhanced their skills based on their mental structures and beliefs about what the story might be about. The multiple strategies relate to constructivist theory because students were engaged in their learning process by reflecting upon what they knew in order to construct that knowledge to gain new experiences. Constructivism emphasizes that people learn best by actively constructing their own understanding of what they are trying to learn (Brenna, 2013; Lu & Doshier, 2007). The constructivist activities for this study were grounded in three principles: activating prior learning is important in acquiring new knowledge, learning is contextually based in relationship to what else we know and believe, and learning is an active process, as is reading comprehension.

The activation of prior learning is necessary in order for individuals to develop skills in reading comprehension. Rapp et al. (2007) suggested that having students engage with what they already know and activating their previous knowledge could help them understand what they read. The RCIP consists of many strategies that require students to activate, construct, and integrate information from previous knowledge. Struggling readers learn to construct stories or passages by identifying characters, events, settings, and main topics, and solving problems as described in the story, which requires accessing previous knowledge about the story structure (Fagella-Luby et al., 2007; van den Broek, Rapp, & Kendeou, 2005). Humans actively construct and form connections between reading materials and their prior knowledge, in conjunction with other activities such as

writing, drawing, and story structure, to understand what they are reading (Gill, 2008; Parodi, 2007; Sparks et al., 2008). When constructing and making connections to the information to be processed, individuals must organize or classify the information so that materials relevant to concept formation on that specific learning topic can be activated and applied to learning new material. This provides children the ability to reason or make inferences about word meaning and to build cues based on how information is represented to them. Hence, learning becomes contextual.

In contextual learning, individuals learn to integrate knowledge in relationship to what else they know and believe. In the RCIP, students learn to emphasize how to process information when they integrate their background knowledge with what they already know. The students acquire knowledge and apply the strategies they may have learned in the past to help them understand what they read. When implementing the RCIP, the guided instruction is led by the RT. The RT encourages students to prove what they already know about the topic. They are encouraged to provide life experiences to identify the meaning of words. Lu and Doshier (2007) indicated that when people gather information and know how to use it, they can engage in mental cognitive processing. Gathering information consists of using different cognitive strategies to help students increase their reading comprehension skills. When students use their mental cognitive processing, they activate their prior knowledge, including their life experiences.

The constructivist theory can be applied to the components of RCIP. For instance, in vocabulary acquisition, students identify the unknown words and search for meaning. They learn to construct and integrate the meanings into their stored knowledge which, in

turn, could be accessed later when they activate their prior knowledge. The students learn to apply what they know about the topic by associating the information with their life experiences, thus leading to a better understanding of the reading materials. The Center for Student Success (CSS) explained that contextual learning is based on teachers educating students by relating new topics to real-world situations and teaching students to problem solve. In addition, the purpose of contextual learning is to help individuals achieve their academic goals. Constructivism emphasizes that students must be taught how to apply their knowledge and connect with their ideas and actions (Cantrell et al., 2010).

Rapp et al. (2007) pointed out that by understanding how one reads and understands the topic, one learns to construct coherence in reading comprehension, in which one understands how and why events happen. According to Espin et al. (2007), constructing knowledge allows readers to connect with a task, particularly during reading activities. When students are reading and constructing their knowledge, they are able to relate to the topic by applying what they already know.

Learning is an active process, as is reading comprehension. The RCIP has multiple strategies to engage students when learning to comprehend what they read. The students are actively engaged by using different strategies to construct and integrate the information for better comprehension. The multiple strategies involved in the RCIP include prereading, repeated reading, silent reading and reading aloud, questions and answers, use of a dictionary, making prediction and inferences, and summarizing, all of which help students increase their reading comprehension skills. The strategies in the

RCIP can be effectively used to increase students' reading comprehension skills (Bui & Fagan, 2013; Karasakaloglu, 2012; Phillips, 2008; Rapp et al., 2007). Furthermore, Cantrell et al. (2010) explained that a reader's ability to understand the text materials requires active cognitive processing.

Constructivism serves as a foundation for the RCIP because the instructional delivery consists of three phases that allow the remediation teacher to provide guided reading instruction to help students actively develop reading comprehension skills. The three phases accomplish the following constructivist activities: (a) provide students the opportunity to use repetition of learned skills, (b) give students the opportunity to work with other students; and (c) give students time to relearn the reading material. When this reading instruction is given, teachers and students are actively involved in building strategies to explore and investigate the topics presented. When students investigate and continue to explore the topic, they develop routine skills. In addition, when students continue to practice reading passages, they increase the chances that their reading comprehension skills will improve (Block et al., 2009). Routine and practice help students become more actively engaged in their learning process. The RCIP provides a variety of activities in which students can learn from other students too. They learn to brainstorm ideas during the peer collaborative sequence. Furthermore, Naseri and Zaferanieh (2012) suggested that providing multiple strategies helps students increase their reading comprehension skills. When using different strategies to read, students tend to apply their critical thinking, thus giving them opportunities to be actively involved in their learning process (Naseri & Zaferanieh, 2012). Additionally, Snape and Fox-

Turnbull (2011) suggested students' interactions with reading material play an important role in helping them become active learners; therefore, when providing instruction to increase students reading comprehension, teachers should engage students in various activities (Gill, 2008; Snape & Fox-Turnbull, 2011).

In conclusion, the constructivist approach is focused on how humans learn and construct meaning of their experiences. The following principles of constructivist theory applied to this study: (a) prior learning plays a role in acquiring new knowledge, (b) learning is contextual, and (c) learning is an active process.

Literature Review on Reading Comprehension

Reading is an important skill for learning and communication. Alshumaimir (2011) conducted a study that showed reading was an essential element of helping individuals improve communication skills. He also emphasized that reading has been viewed as a significant contributor to academic success. In addition, Naseri and Zaferanieh (2012) explained that reading is a complex task that requires several cognitive abilities in order for a person to obtain and process information. Therefore, in this literature review, reading instruction and reading comprehension that employ multiple strategies are discussed. Exploring reading instruction is an important factor in understanding the need for specific instruction to increase students' reading comprehension skills.

Reading Instruction

The NRP suggested that instructional strategies in which phonological awareness, phonological decoding, fluency training, and reading comprehension are taught are

critical to helping students learn to improve their reading skills (NICHD, 2000). Boulineau et al. (2004) suggested that effective reading instruction involves teaching individuals to process material at a deeper level of comprehension in order to help struggling students learn how to read independently. However, research has shown that teachers often do not focus on providing instruction that focuses on teaching comprehension skills, rather, they spend more time on preparation and practice instead of directly and explicitly teaching students how to comprehend the reading text materials (Dewitz, Jones, & Leahy, 2009; Pilonieta & Medina, 2009). Research showed that teachers spend 5.3% of instructional time on direct reading instruction, 18.4% on preparing for reading instruction, including vocabulary development and applying prior knowledge, and 17.4% on assessment activities (Dewitz et al., 2009). Dewitz et al. (2009) found that when teachers engage in direct instruction, they teach reading in pieces by using one or two sentences to generalize the reading instruction. Generalizing the reading instruction instead of focusing on how to teach the reading comprehension skills explicitly may have some benefit to students (Dewitz et al., 2009). Therefore, it is important to develop effective reading instruction to increase students' reading comprehension skills.

Reading Comprehension and the RCIP

Teaching struggling readers to improve their reading comprehension requires a combination of different instructional approaches (Wooley, 2008). The NRP conducted a meta-analysis on effective reading instruction and identified 16 categories of instructional strategies that resulted in increased reading comprehension skills (NICHD, 2000). The

NRP found evidence that the following seven strategies were linked to improved reading comprehension skills in normal readers in classroom settings: comprehension monitoring; cooperative learning; graphic and semantic organizers, including the use of story maps; question answering; question generation; and summarization (NICHD, 2000, pp. 4–42). According to researchers, these strategies were related to improved reading comprehension skills whether implemented individually or with several strategies combined in one approach (Afflerbach, Pearson, & Paris, 2008). In the RCIP, all of these strategies were included in the reading instruction.

Furthermore, the RCIP included multiple instructional components such as vocabulary development, reading fluency, writing practice, and story-mapping techniques. The RCIP focused on strategic and content approaches to improving reading comprehension skills. The strategic approach refers to direct teaching of “specific procedures such as summarizing, making inferences, and generating questions” (McKeown, Beck, & Blake, 2009, p. 218). They defined the content approach as attending and working directly toward students’ reading tasks and working on building ideas through discussions. McKeown et al. further suggested developing a reading comprehension instruction that is precise and can be implemented through standardized lessons, and noted that it is important to focus on content or strategies instruction approaches to help increase students’ reading comprehension skills. In the RCIP, both the strategic and content approaches were used to help students improve their reading comprehension skills. The RCIP comprises multiple components with different

instructional strategies that focus on content strategic approaches to reading comprehension.

The RCIP instruction that I developed focuses on vocabulary acquisition, reading fluency, and writing skills, to which the story-mapping technique was then added. The RCIP contains multiple strategies and components of reading and writing (e.g., vocabulary acquisition, reading fluency, and writing). The instructional components and multiple strategies involved in the RCIP have been suggested by many researchers developing or designing effective instruction for reading comprehension. The instructional components include word recognition, decoding, story-retelling, pre-reading, and implementing reading comprehension strategies before, during, and after reading (Berkeley et al., 2010; Brenna, 2013; Bui & Fagan, 2013; Gill, 2008; Klinger et al., 2010; Liang et al., 2005; Van Keer & Vanderlinde, 2010). In addition, explicit or direct instruction, including explanation, modeling, and guided practice cooperative learning (Cantrell et al., 2010; Gregory & Cahill, 2010; Mahdavi & Tensfeldt, 2013; NICHD, 2000) have also been deemed important in the development of reading comprehension instruction. Furthermore, self-monitoring, main idea strategy, and story map were utilized in this study. Providing scaffolding (which is eventually removed to promote independent learning), discussion, making predictions and inferences, activating background knowledge, using graphic organizers, active participation, and QAR (Brenna, 2013; Kim et al., 2012; Marcell et al., 2010; Rapp et al., 2007; Sencibaugh, 2007) were also added to the RCIP. Neddenriep and Hale (2011) explained that reading comprehension skills are the key to successfully improving reading proficiency and

should be the focus when implementing an effective intervention. Attaining reading proficiency is a good indicator that students can comprehend the reading materials (NAEP, 2011). The NAEP reported that roughly two of every three students read below their grade reading level. Reading deficits have continued to increase over time, impacting students' vocabulary acquisition, reading fluency, and ability to understand what they read (Neddenriep & Hale, 2011; Rampey et al., 2009). Mahdavi and Tensfeldt (2013) reported that past research has not revealed the best instructional strategies for improving the reading comprehension of students in the primary grade levels. Therefore, this study was used to investigate whether the RCIP is an efficacious tool for delivering effective reading comprehension instruction.

RCIP Variables That Influence Reading Comprehension

Vocabulary Acquisition

Vocabulary is strongly correlated with reading comprehension. Shiotsu and Weir (2007) indicated that vocabulary can be used to predict a child's reading comprehension. In their study to determine whether vocabulary or grammar was the stronger predictor of increasing text comprehension, results showed that vocabulary ($r = .41$) was a stronger predictor than grammar ($r = .36$). In addition, Cromley and Azevedo (2007) explained that if a child knows the word meanings, the child can make inferences about the text, which is important for reading comprehension. Cromley and Azevedo (2007) emphasized the importance of testing the effects of word reading on vocabulary. They found that reading vocabulary has a direct medium size effect of .37 on comprehension. Furthermore, Nash and Snowling (2006) suggested vocabulary acquisition instruction

helps students increase their knowledge of words and their meanings, and that when presenting words in the context method instead of word definition the impact of vocabulary on reading comprehension is much higher.

Munger and Blachman (2013) conducted a study to examine the validity of the Peabody Picture Vocabulary Test-III (PPVT-III) and the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) for assessing the relationship between vocabulary and reading fluency of first- and third-grade students while measuring their reading comprehension skills. They used the DIBELS Word Use Fluency (WUF) for first-grade students and the DIBELS Oral Reading Fluency (ORF) for third-grade students. The results showed a significant correlation ($r = .52$) between the PPVT-III and DIBELS WUF on the first-grade students, as well as significant correlations ($r = .39-.57$) with the third-grade students' PPVT-III and DIBELS ORF. In addition, the results showed significant correlation between the two components of reading comprehension: vocabulary use and oral reading fluency. Overall, the results indicated that vocabulary can be used as a strong predictor and can aid in the design of curriculum for increasing reading comprehension skills.

Staden (2013) conducted a study to determine the best instructional approach for teaching hearing-impaired children how to read. Sight words ($r = .94$), word recognition ($r = .92$), vocabulary ($r = .87$), and reading comprehension ($r = .81$) have large effects on the implementation of reading instruction with multiple strategies, and helped hearing-impaired children become better readers. Hearing-impaired children showed significant improvement in reading comprehension skills compared to children in the control group

who received typical classroom reading instruction. Staden also found that although older hearing-impaired individuals may have limited metacognitive skills, younger hearing-impaired readers may benefit from instruction to develop metacognitive reading strategies (e.g., reciprocal teaching) that include predicting, visualizing, and summarizing strategies, which together led to significant gains in individuals' comprehension skills.

Reading Fluency

Reading fluency refers to one's ability to read automatically, accurately, and rapidly (Cates et al., 2006). Reading fluency is a strong predictor of the ability to increase reading comprehension. The number of words read correctly per minute, or reading fluency, has a large effect on reading performance during high-stakes standardized testing. Cates et al. (2006) also recommended including instruction in developing reading fluency in the intervention process to improve children's reading comprehension skills. Klauda and Guthrie (2008) showed that gains in reading fluency were related to reading comprehension and that word reading speed has a significant effect size of .54 in relationship to reading comprehension.

The RCIP was designed to focus on developing reading fluency by using the repeated reading procedure to help students increase their reading comprehension skills. Repeated reading is defined as multiple oral reading, involving "successive encounters with the same visual material, the key being repetition—whether of the same words, sentences, or connected discourse" (Han & Chen, 2010, p. 243). Han and Chen (2010) reported that repeated reading can be used by all students, including those with learning disabilities, to improve reading fluency and reading comprehension skills. Musti-Rao,

Hawkins, and Barkley (2009) suggested using repeated readings as a remediation strategy when helping students increase their reading fluency and comprehension.

Reutzel, Fawson, and Smith (2008) also recommended that students should receive enough practice to familiarize themselves with unknown words in order to improve skills in reading fluency. Repeated readings should be practiced for at least 10 minutes using passages rather than words alone to further improve a student's reading fluency and comprehension skills (Musti-Rao et al., 2009). Reutzel et al. (2008) suggested that reading material at least three to five times is helpful in increasing reading fluency and reading comprehension. Moreover, Musti-Rao et al. (2009) indicated that providing numerous opportunities for reading practice led to reading automaticity and accuracy, thus making students more fluent readers.

Reading aloud will be one of the repeated reading tasks because it tends to support the development of reading comprehension skills (Duke, 2010). Madelaine and Wheldall (2004) found that reading aloud influences both decoding and reading skills. According to Sparks et al. (2008), readers who could read quickly and accurately were identified as skilled readers. Skilled readers tend to be proficient at using their lexical-semantic and syntactic knowledge (Shiotsu & Weir, 2007). Lexical-semantic knowledge is defined as knowing the meanings of specific words and phrases. Syntactic knowledge involves sentence structures that are constructed in a particular language.

Savaiano and Hatton (2013) evaluated the use of repeated reading with three visually impaired students. They found that after repeated reading students were able to retell stories and their reading comprehension increased. Reading rates increased 21% for

Participant 1; 16% for Participant 2; and 9% for Participant 3. The results suggested that repeated reading has a functional relationship to improving reading comprehension; therefore, repeated reading is an important component to consider when developing reading comprehension instruction. In addition, Landerl and Wimmer (2008) highlighted the importance of encouraging children to read repeatedly to build reading fluency and comprehension skills, indicating that the correlation between reading fluency and reading comprehension was .64, which has been shown to be show strong relationship. Furthermore, Block et al. (2009) and Swain, Janssen, and Conley (2013) noted that repeated reading leads to continual and routine reading practice which, in turn, could increase students' reading comprehension skills. Hence, instruction in reading fluency was included in the RCIP.

Writing

Writing skills are essential in everyday living. Sparks et al. (2008) explained that when writing, one must know how to decode and understand words; otherwise, there would be no purpose in writing. Additionally, not only does writing help individuals decode printed words, it also aids in the process of moving information into long-term memory, which facilitates recall of information for better understanding later. McCurdy et al. (2008) explained that writing is a critical aspect of understanding how to read. Students who do not develop basic writing skills are more likely to have problems understanding a written text (McCurdy et al., 2008).

Parodi (2007) explained that writing and reading have a complementary connection that improves student's thinking processes and suggested that teachers teach

reading and writing skills together. When teachers practice this type of combined instruction, they should focus on promoting students' development of general cognitive processes. Berninger et al. (2006) found that there is a bridge from written language to reading comprehension. Writing helps children decode unknown words, which provides support in understanding the sequence of sounds that finally produce words (Craig, 2006). Young readers tend to become engaged and connected to a story if they are asked to write a summary about it to gain a better understanding.

Duke (2010) also emphasized the importance of learning to read and write; doing both is associated with more growth in reading comprehension. Duke recommended giving students an opportunity to write what they have read, especially informational text related to the real world. Hebert, Graham, Rigby-Wills, and Ganson (2014) conducted a study to determine whether instruction combining reading and writing or combining reading and studying would be more effective in enhancing fourth-grade students' comprehension skills. The results indicated there was a significant effect when students used the combination of reading and writing compared to merely reading and studying. In general, students who read and studied without writing had less understanding of the text than students who combined their work with a writing task. Ahmed, Wagner, and Lopez (2014) found that there was a statistically significant relationship between writing and reading. Results from their study showed that reading and writing fluency had a correlation of .37, a moderate relationship, and that the correlation between reading comprehension and writing was .49, a moderate relationship. Ahmed et al. found that writing is a function of reading in all aspects of developing language. In addition, reading

functions at the sentence level for writing. This means that reading-to-writing relationships are strongest at the sentence level compared to word and text levels. Ahmed et al. suggested the results of future studies on combining reading and writing interventions could benefit struggling readers and help improve their reading comprehension skills; therefore, in this study, reading and writing are embedded in each of the instructional components of the RCIP, as well as in the story-mapping technique.

Story Mapping

Story mapping provides a visual-spatial display for organizing important information in narrative text, a story, or passages. Story mapping is an effective strategy for improving reading comprehension, particularly for individuals with learning disabilities (Onachukwu, Boon, Fore, & Bender, 2007). Visual cues such as story webbing or graphic organizers are used in story mapping to help struggling readers understand what they read (Arthaud & Goracke, 2006; Fagella-Luby et al., 2007; Onachukwu et al., 2007). Story mapping strategies have proven effective in guiding students when they organize their thoughts before and after reading a story. Story mapping helps students focus on the important elements of the story, such as the main topic and the characters. It also helps students with interpretation, organization, and comprehension of new information (Fagella-Luby et al., 2007; Onachukwu et al., 2007).

Boulineau et al. (2004) emphasized that story maps can be used to elicit prior knowledge, facilitate discussion, and record significant information about a topic. When eliciting prior knowledge, students are more likely to understand what they read, especially if organizational skills are used. Cromley and Azevedo (2007) suggested that

graphic organizers, such as story mapping, can also be used to teach children how to make inferences in a story. Fritschmann, Deshler, and Schumaker (2007) defined making inferences as the ability to draw conclusions which pertain to the information discussed within the text. Making inferences is a strategy that influences children's abilities to comprehend what they read (Fritschmann et al., 2007). Stagliano and Boon (2009) examined the effects of story mapping on increasing the reading comprehension of three students with learning disabilities. Student 1 scored a mean percentage correct of 6.67% on the baseline assessment; during the intervention phase his scores increased to 92%; and during the maintenance phase he scored 86.67%. Student 2 had a baseline score of 26.67%; during the intervention phase his score was 85%; and during the maintenance phase his score was 86.67%. Student 3 had a baseline of 11.43%; during the intervention phase his score was 86.67%; and during the maintenance phase his score was 86.67%. When the three students were given one-on-one training on the story-mapping elements (identifying characters, settings, problems, solutions, and main ideas), their scores increased substantially. Stagliano and Boon concluded that the story mapping increases students' reading comprehension performances and enables maintenance of those performance levels. They suggested that future research should investigate the use of story mapping not only for improving reading comprehension for students with learning disabilities, but also across other content areas.

Grunke, Wilbert, and Stegemann (2013) found that story mapping improves students' reading comprehension abilities. The students participating had sufficient decoding skills, but limited intellectual functioning that caused them to struggle with

constructing and isolating meaning from the text. Grunke et al. found that using a graphic organizer such as story mapping effectively increased the students' number of correct responses, indicating increased comprehension skills. They suggested that in the future researchers should investigate the use of story mapping as a graphic organizer to help students extract meaning from written text. They also noted that teaching students the story-mapping technique is a challenge; therefore, teachers should be well equipped with tools and other resources in order to use story mapping effectively to help students improve their reading comprehension skills.

Rationale for Implementing the RCIP With Vocabulary, Fluency, Writing, and Story Mapping

Researchers have shown that vocabulary, reading fluency, and the ability to write well are essential to developing good reading comprehension (Begeny & Silber, 2006; Craig, 2006; Cromley & Azevedo, 2007; Landerl & Wimmer, 2008). Using repeated reading helps struggling readers become more fluent readers (Savaiano & Hatton, 2013). Repeated reading of a storybook is important in that it provides an opportunity for children to demonstrate their abilities and increase their word knowledge. In addition, repeated reading can result in the acquisition of additional vocabulary words (Justice, Meier, & Walpole, 2005).

Writing also influences students' abilities to comprehend what they read. Berninger et al. (2006) suggested that there is a connection between written language and reading comprehension. Ahmed et al. (2014) found that both writing and reading are critical to all aspects of language. Writing allows students to understand a passage or a

story through entertaining, informing, and persuading audiences that the main topic is important (Fritschmann et al., 2007).

Students need effective interventions that will give them opportunities to become proficient readers (Walczyk, Wei, Griffith-Ross, Goubert, & Cooper, 2007). Vocabulary, reading fluency, and writing have all been shown to increase reading comprehension, but unlike the RCIP applied in my study, they have not been combined in a single instructional package. Therefore, an important gap in the literature remains regarding whether combining vocabulary acquisition, reading fluency, writing, and then adding them to story mapping will improve students' reading comprehension. I hypothesized that the combined instructional component of RCIP will improve students' reading comprehension skills.

Importance of Assessing Reading Comprehension

Third-grade students are required by the Department of Education in Florida to read 111 words per minute correctly. Reading fluency benchmarks are established based on the grade reading level as defined by the FCRR (2010). According to an FCRR study, third graders' oral reading fluency (ORF) word per minute (WPM) benchmarks should be 78 WPM in the fall, 85 WPM in early winter, 93 WPM in late winter, and 111 in the spring in order for students to be on grade level. A child is considered at high risk for developing reading problems if the ORF benchmark is below 52 words read correctly per minute in the fall, 59 WPM in early winter, 66 WPM in late winter, and 79 WPM in the spring. The curriculum-based measurement (CBM) Reading Maze will be used to measure reading comprehension in this study. Abu-Hamour (2013) explained that the

CBM-Reading Maze has adequate validity and reliability for assessing reading skills at all grade levels. Correlation coefficients of .85 to .89 revealed the CBM-Reading Maze has strong test-retest reliability. Furthermore, the CBM-Reading Maze has been described as the best method to measure reading comprehension (Shinn, 2008; Shinn & Shinn, 2002). Overall, the CBM-Reading Maze seems to have sensitivity in growth, good reliability, and validity and was, therefore, used to measure the impact of the RCIP on reading comprehension.

Summary

The NAEP stated that two of every three students fall behind in reading (Rampey et al., 2009). Neddenriep and Hale (2011) and Rampey et al. (2009) explained that reading deficits continue to increase and negatively affects students' vocabulary acquisition, reading fluency, and reading comprehension. In addition, both 2002 and 2009 NAEP reports revealed that approximately one third of U.S. students could read at the below basic level, and others are at or above the proficient level (as cited in Rampey et al., 2009). The extant research literature contains a great deal of information about individual strategies for improving students' reading comprehension skills. However, there is a gap in the literature regarding the efficacy of employing instruction that utilizes multiple strategies to improve students' reading comprehension skills. In addition, no research studies containing a discussion about relative gains realized by implementing combined instructions in reading were found.

Past studies have shown that vocabulary acquisition, reading fluency, writing, and story mapping increase students' reading comprehension (McCurdy et al., 2008; Staden,

2013; Stagliano & Boon, 2009). Vocabulary has a large effect size ($r = .87$) in increasing reading comprehension skills (Staden, 2013). It has been suggested that reading fluency should be included in the development of instruction for reading comprehension. Landerl and Wimmer (2008) showed a substantial correlation between reading fluency and reading comprehension. Researchers suggested that including reading fluency, practice reading, and having a routine are important when developing a reading comprehension instruction (Block et al., 2009; Swain et al., 2013). Several research studies revealed strong relationships between reading comprehension and other types of skills. For example, researchers have shown there is a functional relationship between reading and writing. Ahmed et al. (2014) reported that writing is a function of reading, and vice versa. McCurdy et al. (2008) suggested that it is critical for children to have writing skills; without them, they may have problems understanding reading materials. Grunke et al. (2013) further reported that story mapping can be an effective tool for helping students improve their reading comprehension skills. Therefore, the RCIP used in my study was developed to help students increase their reading comprehension skills based on the suggested interventions.

Chapter 3: Research Method

Introduction

This secondary analysis study was conducted to examine the effectiveness of an intervention designed to improve students' reading comprehension skills. In this study, I worked with a RT to implement two reading intervention strategies, namely, story mapping and the RCIP. The story mapping refers to a graphic organizer that incorporates multiple strategies. Graphic organizers require the use of different cognitive strategies such as (a) organizing, (b) making inferences and predictions, (c) reflecting and synthesizing information, (d) identifying important details, and (e) visualizing cause and effect within the story. The RCIP contains multiple instructional strategies that target several reading components such as vocabulary acquisition, reading fluency, and writing, and adds them to the story-mapping technique. Each of the reading components has been shown to improve students' reading comprehension skills (Sencibaugh, 2007). These reading components have been studied and shown to be effective in increasing students' comprehension skills when implemented individually, but no research studies that combined vocabulary acquisition, reading fluency, writing, and story mapping in one instruction were found in the extant literature.

This chapter includes a description of the various components of the research design (e.g., SCED, MPD, and CBM-Reading Maze), the setting, and the targeted sample. Additionally, the procedures, treatment interventions (e.g., story mapping, RCIP), intervention procedures, intervention materials, instrumentation reliability and

validity, threats to internal validity, data analysis, confounding variables, and ethical measures to protect participants are all presented.

Research Design and Approach

In this secondary analysis study, a quasi-experimental quantitative method was used to determine if the implementation of an RCIP improves students' reading comprehension skills. The data obtained for this study were collected by the chosen school and released for analysis of this study. The question of whether there is a significant difference between implementing story mapping alone or with the RCIP to increase students' reading comprehension was addressed. Use of a quantitative method was appropriate for this study because numerical data were analyzed to determine whether implementing the story mapping alone and/or the RCIP improved the participants' reading comprehension skills (Burns & Grove, 2005).

The use of a quantitative method in this study is supported by a post positivist worldview. The post positivist worldview is grounded in the acknowledgement that a view of reality exists only through scientific inquiry, and an understanding that the results of studies of phenomena cannot be confirmed as absolutely true (Routledge, 2007). The absolute truth is defined as one that cannot be falsified until hypotheses are repeatedly tested (Ghezeljeh & Emami, 2009). In this case, the differences between implementing the story-mapping technique alone when compared to implementing the RCIP to determine whether they increase participants' reading comprehension skills would be the absolute truth being studied.

Qualitative or mixed methods were deemed inappropriate for this study and were not used. Qualitative methods were not warranted for this study because they do not require manipulating the variables needed to identify the treatment effects. In addition, qualitative methods were not applicable to this study because they focus on gathering data through subjective means such as interviews and observations (K. M. T. Collins, Onwuegbuzie, & Sutton, 2006). Collecting qualitative data requires more time and an intensive use of resources (Dobrovolny & Fuentes, 2008). Additionally, mixed method studies, which are a combination of quantitative and qualitative methods, were not applicable because no qualitative data were collected. Quantitative methodology was the most appropriate approach to examining the research questions. In addition, a quantitative method was used in this study because quantitative methods are applicable to single-subject design or single-case experimental design (SCED; Shadish & Rindskopf, 2007).

Single-Case Experimental Design (SCED)

SCED is commonly known as single subject design, single subject experimental design, or the single n-design (Mitchell & Jolley, 2004; Rassafiani & Sahaf, 2010; Shadish & Rindskopf, 2007). SCED was used to examine whether implementing the story mapping alone and/or the RCIP improved participants' reading comprehension. Several researchers emphasized that the SCED provides personal data evaluation instead of averaging group differences (Hapstak & Tracy, 2007; Rassafiani & Sahaf, 2010). Hapstak and Tracy (2007) suggested that the SCED is particularly useful for studying participants in remedial programs.

SCED is also useful because it requires fewer participants than other methods of research study, and thus requires less funding than other research designs (Rassafiani & Sahaf, 2010; Schlosser, 2006). The SCED was used to obtain information related to the treatment effects when a new intervention was implemented. Wong (2010) indicated that the SCED is inappropriate in laboratory or experimental based research in which the prime objective is focused on generating definitive evidence about causal relationships. The causal relationship is whether manipulation of the independent variable results in corresponding changes in the dependent variable. The SCED can be used to assess changes over time while controlling for the effects of confounding variables.

Among SCEDs, design types include the reversal design, the changing criterion design, the alternating treatments design, and the multiple baseline design (MBD). The reversal or withdrawal design has been used to examine a person's behavior by withdrawing treatment and then reintroducing the treatment again. The changing criterion design has been used to study behavior by developing a gradual, systematic treatment for participants and then studying the outcome. The alternative treatment design focuses on comparing two or more treatment conditions and alternating them to compare and understand the effects on target behaviors (Rassafiani & Sahaf, 2010; Schlosser, 2006; Wong, 2010). The MBD is useful for examining the effects of new strategies or new interventions. The MBD can be used across individuals, behaviors, and settings (Rassafiani & Sahaf 2010; Wong, 2010) and has two variations: the delayed-baseline design and the MPD. The delayed baseline design is used to collect data that are commonly used when a planned reversal design is no longer applicable because of

limited resources or when new behavior or participants are added. In my study, the MPD was used to collect data intermittently during baselines before implementing the story mapping and the RCIP (Cooper, Heron, & Heward, 2007; D. Horner & Baer, 1978).

Rationale for Using the Multiple-Probe Design (MPD)

The MPD is a variation of the multiple-baseline design (Cooper et al., 2007; D. Horner & Baer, 1978; Li, 2007; Lo et al., 2011) in which multiple sets of data are collected using an SCED to examine the effects of manipulating independent variables, which in this study were RCIP and story mapping alone. The difference between the MPD and the MBD is that in the MPD, data collection is conducted intermittently; whereas in the MBD data are collected continuously (Lo et al., 2011). The MPD still allows a researcher to observe the targeted behaviors over time. The rationale for using the MPD in this study was that the necessary data could only be collected intermittently (Delano & Snell, 2006). The MPD was used to initially collect data about all participants during baseline conditions, and then during and after the RCIP implementation. The CBM-Reading Maze was used as a measure or probe for data collection.

Curriculum-Based Measurement (CBM)

The use of CBM facilitates repeated assessments of a student's academic growth in the areas of reading, mathematics, written expression, and spelling (Christ & Silbergitt, 2007; Hale, Kaufman, Naglieri, & Kavale, 2006). Germann implemented CBM in schools to give educators a simple, concise, and efficient way to evaluate students' academic performances (Fuch & Fuchs, 2009; Shinn & Shinn, 2002). Using CBM, Ardoin et al. (2013) found a moderately robust criterion validity ($r = .70$) when

they examined second- to fifth-grade students' reading performances in relations to their reading rate and reading comprehension. Hosp and Suchey (2014) also reported that CBM provides a valid and reliable measure of overall reading ability as found in the DIBELS. A correlation of $r = .67$ was found in a third-grade students' reading performance when comparing the DIBELS to the Reading Comprehension Subtest of the IOWA Test of Basic Skills. The DIBELS is based on the CBM conducted by Dr. Deno in 1970 (Good & Kaminski, 2014).

The CBM is a method designed to measure a student's performance over time and is helpful in evaluating instructional effects (Christ & Silberglitt, 2007; Hale et al., 2006). The CBM has been used in special education settings to guide appropriate decision making and to identify whether instructions are effective (Christ & Silberglitt, 2007). In addition, Fuchs and Fuchs (2009) demonstrated the effectiveness of the CBM in monitoring students' progress as well as evaluating the final outcome of an intervention. CBM can be used to assess students' growth and development within the curriculum being taught in the classroom (Shinn & Shinn, 2002). The CBM can also be used for specific curriculum such as reading comprehension. In my study, the CBM-Reading Maze was used to measure students' reading comprehension skills. The CBM-Reading Maze is a multiple-choice cloze format. Cloze format is a deletion test in which students complete a sentence while reading silently and choose a word to replace the deleted word. The CBM-Reading Maze was administered and scored using the AIMS website (Fuchs & Fuchs, 2009).

Setting and Sample

The study was conducted in a metropolitan area in Central Florida. The elementary school site chosen for this study had 601 students enrolled for the 2013–2014 fiscal school year. Of this number, 112 were in the third grade; 62 were boys and 50 were girls. The diversity of the third-grade student population in the district included approximately 9.5% Hispanics, 85% African Americans, 1% Asian-Americans, 0.5% Native Americans, and 1.3% multiracial students. According to the Florida Comprehensive Assessment Test School Public Accountability Report, 2012/2013, the average class size was 14 to 15 students in grades K to 3 (Florida Department of Education, 2012/2013).

Purposive sampling was used to recruit third-grade students in this study. Fealey (2011) used purposeful sampling in a study of explicit instruction for graphic organizers to increase third-grade students' reading comprehension skills. The results of Fealey's study showed that graphic organizers help students identify the most important information in a story.

Purposive sampling is a method of non probability sampling in which researchers choose participants based on the criteria needed to implement a study (Jupp, 2006). Purposive sampling was used in this current study. The school administrator identified and selected participants who needed extra intervention and who could benefit from this study. Hence, purposeful sampling was used to recruit students for this study. I obtained permission from the school district to recruit students for this study. The school district requires researchers to submit a written application that summarizes the details of the

proposed study. The written application permission was submitted to the research department of the school district for approval. After the school district approved the study, the school principal was informed of the approval to implement the study. I obtained consent from the school principal and was then able to collaborate on the details of the study, with particular attention paid to the recruitment of participants. As indicated previously, participants were recruited and selected based on their low reading performances. Low reading performance was defined as Reading Level 2 or below the basic grade reading level (FL St. 6A-6.054 K–12 Student Reading Intervention Requirements) under the FCAT requirement. The FCAT is a criterion-referenced test, used to assess students' academic performances based on their knowledge and skills in accordance with the Florida curriculum Sunshine State Standards. Students who qualified for special education based on special needs were excluded due to the risk that they would lose their services if they showed significant improvements in reading (Florida Department of Education, 2012/2013; Mitchell & Jolley, 2004).

The recruiting process began by sending letters to the parents of potential participants. The school, with my help, sent letters to the parents of potential participants asking if they wanted their children to receive the extra interventions involved in this study. This study was a secondary analysis in which the school oversaw the interventions and chose a RT to implement this study. I acted as the teacher assistant and prepared learning materials daily; entered, scored, and reviewed data; and provided teacher support. The school provided me with the deidentified data collected for this study as well as other data involving the participants' academic progress.

Eight third-grade participants were recruited for this study. The sample size was based on research that indicated that three to eight participants is an appropriate sample size when conducting an SCED study (Gillis & Butler, 2007; Stagliano & Boon, 2009). Furthermore, Lipsey and Wilson (1993) suggested that an effect size of .60 is considered large when measuring the effects of educational treatment on achievement in reading instruction. Using the effect size of .60, an alpha level of .05, and a power of .80 (as determined using GPower3 software), the preliminary analysis revealed that a minimum sample size of six would be needed for this study in order to detect a large effect size (Faul, Erdfelder, Lang, & Buchner, 2007). Jaccard and Becker (2002) suggested that eight students were needed to participate in this study to account for possible attrition; therefore, eight participants were recruited.

Procedures

General Procedures

Prior to obtaining Walden University Institutional Review Board (IRB) approval, I obtained permission from the school system to conduct the research. Obtaining permission from the school district and the school was necessary because the approval letters have to be submitted along with the IRB application in order to conduct the study. After the IRB approval, the letter informing parents about the extra intervention and requesting permission for their children to participate was sent to them in accordance with school regulations. In addition, the school administrator and I discussed likely candidates to serve as the remediation teacher to implement the study.

After the school administrator and I discussed potential remediation teachers and identified students to participate, participation agreements were sent to parents. While waiting for the informed consent forms to be returned, I discussed the study with the RT. I provided training to the RT with regard to proper implementation of the study. Task analysis was used to ensure the RT conducted the story mapping and the RCIP interventions. The task analysis was a step-by-step accounting process used to track the tasks involved in this study. The task analysis was based on the instructional components in the story mapping and the RCIP as outlined in the intervention procedures. I provided instructions to the RT on how to implement the story mapping and the RCIP. In addition, the RT and I attended the AIMSweb webinar to familiarize ourselves with the CBM-Reading Maze and the use of this software. The RT and I explained to the students our expectations that they would show respect to everyone involved in the study and not engage in behaviors that would negatively affect the learning process.

In addition, all participants were informed that all personally identifiable information would be kept confidential. The participants were assigned two letters to use in place of their personal information. The assigned letters were tied to the participants' first and last name initials for the purpose of matching records. All data are stored in a locked file cabinet that only I can access; data will be kept for at least 5 years as per APA guidelines.

Data Collected

The RCIP utilized in this study consists of vocabulary enhancement, repeated reading, writing, and then adding these instructional components to story mapping in an

effort to improve reading comprehension. This study was a secondary analysis and employed a quantitative, quasi-experimental method in which data was collected intermittently in a single-case MPD using the CBM-Reading Maze. The quantitative portion of the study enabled the identification of changes in reading skills over time. I served as the remediation teacher's assistant by reviewing students' worksheets, scoring, and analyzing the data. Afterwards, the school released the de-identified data for analysis.

The CBM-Reading Maze was used to collect data for baseline and treatment conditions (e.g., story mapping and the RCIP) using the MPD. The MPD was employed intermittently to collect data during the baseline, which is defined as the period prior to the implementation of the story-mapping intervention. Data was also collected after the story-mapping instruction had been implemented. The data collected during this period was used to assess students' reading comprehension outcomes. The data collected after the story-mapping instruction alone and the RCIP were treated as the independent variables. The dependent variables were the outcome measures collected during the CBM-Reading Maze administration, which was used to measure the participants' number of correct responses. The outcome scores were quantified using a nonparametric measure such as the PND to assess changes in participants' reading comprehension. The percentage score was calculated by dividing the total number of data points earned by the amount of data collected, and multiplying by 100 (Bui & Fagan, 2013).

The CBM-Reading Maze was used intermittently to collect data using the MPD. The baseline data was collected prior to implementing the story mapping alone. Three data points were collected for baseline, two data points for the story mapping instruction,

and four data points for the RCIP. Having a minimum of three data points was necessary to demonstrate baseline data stability. Stable baseline data provide confidence that the target behaviors occur at typical rates. This means that the extraneous variables have been controlled or eliminated prior to the interventions. Furthermore, in order to demonstrate stable baselines, no downward or upward trends in the sequence of data points can be present, and they must be closely grouped within a small range of values (Cooper et al., 2007; Tankersley et al., 2008).

After collection of the baseline data, the story-mapping intervention began. The story-mapping instruction was presented 30 minutes daily for 5 days. After the story-mapping intervention, the CBM-Reading Maze was administered, and the results were recorded for later analysis. The results comprised the number of correct responses, participants circled during the CBM-Reading Maze administration during the allocated 3-minute interval. After the CBM-Reading Maze was administered, I recorded the results on the AIMSweb web site for scoring and progress monitoring. After the story-mapping section was completed, vocabulary acquisition, which is the first component of the RCIP, was implemented.

The vocabulary acquisition instruction was delivered 30 minutes daily for 5 days. After the vocabulary acquisition and writing, the reading fluency instruction was implemented for 5 days, 30 minutes daily. The writing component of the RCIP was included in the vocabulary acquisition, reading fluency, and story-mapping technique portion of the study. The writing task was embedded in the vocabulary acquisition, reading fluency, and story-mapping components. The writing portion is explained in

more detail in each phase of the RCIP described below. The CBM-Reading Maze was administered after each of the RCIP instructional components was implemented. The number of correct responses obtained from the participants' data was recorded using the AIMSweb software. Aimsweb was used to record the participants' scores as well as to generate reports and graphs to show the continuing progress in reading comprehension. The story mapping and RCIP instruction were implemented for a total of 6 weeks.

Data Analysis

This study incorporated a single-case experimental MPD across subjects in which visual analysis was used. AIMSweb software was used to analyze the data collected from administering the CBM-Reading Maze. Visual analysis is very easy to use for longitudinal data analysis. The data collected were quantified by counting the total number of items correct after administering the CBM-Reading Maze to measure participants' reading comprehension (Shinn, 2008; Shinn & Shinn, 2002).

The number of correct responses obtained from each participant's data were entered in the software using AIMSweb. AIMSweb is a formative assessment system, focusing on reporting performance and providing progress monitoring (Shinn, 2008; Shinn & Shinn, 2002). AIMSweb was developed by Shinn and Shinn (2002) to provide information to teachers, school administrators, and parents. Additionally, AIMSweb was founded on the principles of using general outcome measures to monitor students' progress. The AIMSweb software was used to analyze data and generate graphs, which was helpful in analyzing the data collected in this study. The AIMSweb software provided information and progress reports on students' overall reading comprehension

results. In addition, the percentile rank calculated at the school level was produced.

AIMSweb also generated information on the year, grades, benchmark, outcome measures, level of skills, and instructional recommendations. For this study, only the benchmark, outcome measures, and level of skills were explained in the interpretation of the results. Trend lines, aim lines, and the data points were graphed and analyzed visually. The trend lines indicated the direction of how well participants performed as a result of the intervention. The aim line was the benchmark of where participants should be in their progress and grade level. The data points were the outcome measures after implementing the CBM-Reading Maze. Each of these reflects the degree to which the RCIP and story mapping were effective. The data were visually analyzed to answer the research questions and address the hypotheses of this study.

Research showed that visual analysis of the data were best used when conducting the SCED research design (Smith, 2012). Tanskersley et al. (2008) stated the best way to assess the effectiveness of an intervention is to inspect the outcome data visually. They defined visual inspection as a systematic process of evaluating and analyzing graphic representations of data points obtained from baseline and intervention conditions. The data points on the graphs represent the participants' correct responses as measured by the CBM-Reading Maze. Upward trends in the graphs indicate progress has been made, and the slope and magnitude of the upward trends reflect the effectiveness of the intervention (Tanskersley et al., 2008).

The trend refers to the series of data points showing the increase or decrease in the effectiveness of the intervention over time. Changes in trends provide solid evidence

that specific interventions affect the target behavior. The latency of change is defined as how fast the changes in the target behaviors occur after terminating one condition, such as the baseline or intervention, and the onset of another condition (Tankersley et al., 2008). If the changes take longer to appear after the intervention has been implemented, then there is less confidence in associating intervention effectiveness with the target behavior. However, in some cases, it depends on the intervention being investigated; if interventions are expected to have long-lasting effect, then latency of change should be evaluated prior to including them in research. Therefore, in this study, data were graphed and visually analyzed to show the effectiveness of story mapping and the RCIP on the third graders' reading comprehension skills. The effect size, along with using the PND, was calculated to determine the degree to which story mapping and the RCIP were effective.

Beeson and Robey (2006) defined effect sizes as the degree to which the results of the intervention differ from zero. When conducting the SCED, effect size is calculated to measure the degree or the effects of interventions on the target behaviors. In order to measure the effect size, performances between the baseline and treatment conditions were compared. It was assumed that the baseline level was at or near zero, but after providing treatment the level should be higher than zero, or greater than the baseline behavior of interest. In other words, an effect size provides a measure of the degree or magnitude of change between pre- and post-treatment (Beeson & Robey, 2006; Solanas, Onghena, & Manolov, 2010).

In addition, scores were converted to percentage to determine the effectiveness of interventions. The PND was used to convert the outcome scores as defined earlier (Bui & Fagan, 2013). The PND is scaled from 0–100%; 50% below indicates unreliable or ineffective intervention; 50–70% are questionable or effectiveness is minimized; 70–90% are fairly effective or moderately effective; and 90% or higher is highly effective (Campbell, 2004; Wendt, 2009). The PND was identified using the highest baseline point and counting the number of intervention data points that were above the highest baseline point (non overlapping). In addition, the Cohen's *d* effect sizes were used along with the PND. The effect size was calculated using the effect size calculator created by Becker from University of Colorado (Becker, n.d.). Becker reported the following Cohens *d* effect size in equivalent to the PND: The Cohen's *d* indicates that a small effect size ranges from 0.2 or 14.7% PND to 0.4 or 27.4% PND inclusive. The Cohen's *d* medium effect size starts at 0.5 or 33.0% PND up to 0.7 or 43.0% PND inclusive. The Cohen's *d* large effect size ranges from 0.8 or 47.4% PND up to 2.0 or 81.1% PND inclusive (see Table 1). When these scores are heading in the positive direction of the trend lines, upward trend lines indicate interventions are effective. If scores are in the negative direction of the trend lines, the effectiveness of interventions is decreasing. If scores are in 0 or 100, the results have an overlapping between the baseline and interventions indicating no difference or no interactions between the two interventions. (Sullivan & Feinn, 2012; Becker, n.d.).

Furthermore, the absolute effect, which is the “difference between the average, or mean outcomes in two different intervention group” (Sullivan & Fein, 2012, p. 279). For

example, if subjects scored an average total of 10 of 20 questions when compared to another intervention, the absolute effect size would be 10 or .5 multiplied by 100 equal to 50%. Hence, the formula could be intervention one minus intervention two divided by total amount data, then multiple by 100%. Therefore, the PND, the Glass V effect sizes, Cohen's d effect size, and absolute effect size, would determine the main effects, the magnitude, the interaction effects, and the difference between the story mapping technique and the RCIP.

Below are the formulae for obtaining the standard deviation and the effect size:

Sample Standard Deviation from Calculator.Net:

$$s = \sqrt{\frac{1}{N - 1} \sum_{i=1}^N (x_i - \bar{x})^2},$$

Cohen d Effect size: $X_t - X_c / \text{where pooled } = \sqrt{[(s_t^2 + s_c^2) / 2]}$

Key to symbols: d = Cohen's d effect size; x = mean (average of treatment or comparison conditions; s =standard deviation. *Subscripts t* refers to treatment condition and *c* refers to the comparison condition (or control group) (Thalheimer & Cook, 2009). For this study the c was referred to the baseline condition since this study has no control group, to compare the effectiveness of story mapping and the RCIP to its baseline.

The PND was used as a nonparametric measure to calculate the effect size of the visual analysis. The data was derived from a participants' number of correct responses within 3 minutes after administering the CBM-Reading Maze. The PND calculates the nonoverlapping data between baseline and the successive interventions (Campbell, 2004; Wendt, 2009). The PND has been chosen for this study because of its significant

correlation between other nonparametric measures and visual analysis. Of all the nonparametric measures, such as the PAND (percentage of all nonoverlapping data, $r = .784$), PEM (percentage of data points exceeding the median, $r = .840$), PDO (pairwise data overlap, $r = .871$), and the IRD (improvement rate difference, $r = .819$), the PND (percentage of non-overlapping data, $r = .900$) has the highest correlation; hence, the PND was chosen for this study. Therefore, the PND, the Glass V effect sizes, Cohen's d , and the absolute effect size would serve as the interpretation guidelines to determine the effectiveness of the story mapping and the RCIP on improving participants' reading comprehension skills.

The research questions and the hypotheses are identified in this section again for review.

Research Question 1

What is the main effect of implementing RCIP as an instructional strategy on students' reading comprehension as measured by the CBM-Reading Maze?

H1₀. Implementing RCIP as an instructional strategy, which consists of vocabulary acquisition, reading fluency, writing, and story mapping instruction, has no statistically significant main effects on students' reading comprehension as measured by the CBM-Reading Maze.

H1_a. Implementing RCIP as an instructional strategy, which consists of vocabulary acquisition, reading fluency, writing and story mapping instruction, has statistically significant main effects on students' reading comprehension as measured by the CBM-Reading Maze.

Research Question 2

What is the main effect of implementing story mapping alone on students' reading comprehension?

H2₀. Implementing the story mapping alone as an instructional strategy has no statistically significant main effects on students' reading comprehension as measured by the CBM-Reading Maze.

H2_a. Implementing story mapping alone as an instructional has statistically significant main effects on students' reading comprehension as measured by the CBM-Reading Maze.

Research Question 3

What are the interactive effects of implementing the instructional strategies of RCIP and story mapping on students' reading comprehension?

H3₀. Implementing RCIP and story mapping as instructional strategies, which consist of vocabulary enhancement, reading fluency, and writing, has no statistically significant interaction effects on students' reading comprehension as measured by the CBM-Reading Maze.

H3_a. Implementing RCIP and story mapping as instructional strategies, which consist of vocabulary enhancement, reading fluency, and writing, has statistically significant interaction effects on students' reading comprehension as measured by the CBM-Reading Maze.

Research Question 4

What are the differences in students' reading comprehension scores when implementing the RCIP compared to story-mapping instruction alone?

H4₀. There are no statistically significant differences in students' reading comprehension, as measured by the CBM-Reading Maze, when implementing the RCIP, which consists of vocabulary acquisition, reading fluency, writing and story mapping instruction, when compared to implementing story-mapping instruction alone.

H4_a. There are statistically significant differences in students' reading comprehension, as measured by the CBM-Reading Maze, when implementing the RCIP, which consists of vocabulary acquisition, reading fluency, writing and story mapping, when compared to implementing story-mapping instruction alone.

Intervention Procedures

Intervention Settings

The participants were grouped together in one classroom. Participants attended the remediation instruction 45 minutes before their regular summer classroom schedule ended. The RT was solely responsible for implementing the story-mapping instruction, first after baseline data had been collected, followed by the RCIP components that consisted of vocabulary acquisition, reading fluency tasks, and writing, and then adding them to the story-mapping technique. I served as the RT assistant in the classroom, and helped administer the CBM-Reading Maze to collect baseline data and all intervention data. The CBM-Reading Maze was administered to measure students' reading comprehension skills in a group setting during the baseline portion of the study to collect

at least three data points, and the interventions from the story mapping, and when implementing each of the RCIP instructional components.

Intervention Materials

Three storybooks published by Harcourt School Publisher were used for this study. The first book contained 516 words; the second book 519, and the third book 545. The first book was written by Surrey and is titled, *The Parts of a Tree*. The book contains explanations of the function of each part of the tree, how trees grow, and why trees are important to people. The second book, written by B. Wright, is titled *How Scientists Work*. The ways in which scientists make discoveries are discussed in the book. The third book was written by Cantu and is titled *The Country of Chile*. In this book, Cantu presents many different facets of Chile's culture.

The intervention materials for this study consisted of pencils, dictionaries, and the Florida Center for Reading Research (FCRR) worksheets (see Appendix A). For vocabulary acquisition, the word wrap, word knowledge, and writing persuasive letter worksheets were used. In reading fluency, there were different reading activities such as group, peer, and independent reading. Each reading activity was paired with different worksheets according to the following tasks: group and individual reading involved worksheets such as read and ask for monitoring understanding and retelling the story. For peer reading, the read and read again and read and ask worksheets were used when repeated reading tasks were done. Participants used and recorded their repeated readings using the word correct per minute worksheet. They also used a timer and markers during peer reading.

Participants wrote in all of the worksheets in response to the questions in the worksheet instructions. For the story mapping, participants incorporated the things they learned using the story-mapping worksheet to convey their total understanding of the story. More details about these intervention materials are explained later in this chapter (FCRR, 2010).

Intervention Treatments

Story-mapping (SM) instruction. Story mapping involves grasping the main ideas of a story and then organizing the sequence of story events. A graphic, visual presentation is used to facilitate the organization of a story (Li, 2007). The story-mapping instructions and worksheets can be found in Appendix A. The first book, *The Parts of a Tree* (Surrey, n.d.), was used to implement the story mapping. In the story-mapping instruction, participants were first asked to read the story. Afterwards, they were provided an activity that pertained to the story-mapping worksheet obtained from the Florida Center for Reading Research website. Participants were provided with a copy of the text and the worksheets. The participants read or reviewed the text and wrote the title and author of the story. They were instructed to identify three characters, the setting, problems, four events, and solutions to the problems in the story. The story-mapping worksheet was used (C.009.SS2 or B), and participants were instructed to write on it. Participants were asked to raise their hands if they needed help with the worksheets. After the tasks on the story mapping were completed, the RT facilitated a brief discussion on the completion of the task. Participants were instructed to show evidence, based from

their reading, on how they arrived at their responses. After discussion, I collected the worksheets from the participants and recorded the data.

After the students completed the basic tasks identified in the story-mapping instruction, they were paired to work together on completing the other story-mapping worksheet, identified as C.009.SS2 or B. The student pairs worked together to complete the elements on the worksheets such as identifying: the setting (where and when), characters, problems, and five events; and then solving the problems or formulating a solution. The participants were instructed to raise their hands if they needed help and when finished completing the second story-mapping worksheet. The RT and participants then discussed this task. The RT asked participants to share their understanding of the story and have them provide evidence on how they arrived at their responses. I once again collected the worksheets and recorded data. The RT then instructed participants to complete the third story-mapping worksheet, which is identified as C.009.SS3 or C. The worksheet was introduced and participants completed it individually. Participants answered the following questions on the worksheet: “Who is the author and what is the title of the story? Who are the important characters in the story? Who is your favorite character and why? What is the setting of the story? What is the plot of the story? What is the problem in the story? What is the theme of the story? What is the solution to the problem? What is another way the problem could have been solved?” After participants completed this third story-mapping worksheet, the RT discussed the story with students to help them identify the story elements and answer the questions in the story-mapping graphic organizer.

Finally, after the participants had a full understanding of the story-mapping instruction, they repeated the previous task from worksheet C by writing answers to the questions on the blank story-mapping worksheet, which was identified as C.009.SS4 or D. The participants completed this fourth story-mapping worksheet on their own to the best of their abilities. The participants answered the questions from worksheet C. The story element identification was calculated based on the number of correct responses divided by the total count and multiplied by 100 (e.g., $8/9 \times 100$; Shinn & Shinn, 2002). After completion of the last story-mapping worksheet (D), the CBM-Reading Maze was administered to all participants at the same time. I scored the CBM-Reading Maze and entered the results in the Aimsweb database. The results were used to measure changes in reading comprehension that resulted from instruction in story mapping. The data assessed changes in reading comprehension resulting from implementation of the RCIP.

Reading comprehension intervention package (RCIP). The RCIP was designed to emphasize the following strategies: word recognition, decoding, story-retell, and pre-reading. It was implemented with different reading comprehension strategies before, during, and after reading. The RCIP provides explicit or direct instruction that includes an explanation, modeling, guided practice, cooperative learning, and self-monitoring. The RCIP was added to the story-mapping, which provided scaffolding that was later removed to encourage independent learning. The RCIP included many discussions and interactions such as making predictions and inferences, activating background knowledge, allowing active participation, and responding to questions and answers (Berkeley et al., 2010; Brenna, 2013; Bui & Fagan, 2013; Cantrell et al., 2010;

Gill, 2008; Gregory & Cahill, 2010; Kim et al., 2012; Klinger et al., 2010; Liang et al., 2005; Mahdavi & Tensfeldt, 2013; Marcell et al., 2010; NICHD, 2000; Sencibaugh, 2007; Van Keer & Vanderlinde, 2010).

Vocabulary acquisition and writing. Min (2008) suggested that vocabulary growth can be achieved through extensive repeated reading, use of a dictionary, and interactions between teachers and students. In the RCIP, interactions included completing the worksheets, interacting with peers and the RT/teachers and getting involved with books through repeated readings. Furthermore, dictionaries were used in the vocabulary acquisition and writing instruction. The writing task was embedded in the vocabulary acquisition, which was delivered in four steps: explain the tasks, modeling, collaboration, and independent task.

The first of these four steps consisted of the RT teaching and explaining to students how to identify and list unknown or unfamiliar words from the storybook. During the vocabulary acquisition step the RT and participants read the second book, *How Scientists Work* (B. Wright, n.d.). The RT explained the tasks by using the word knowledge first.

The word knowledge worksheet helped participants identify and learn the unknown words in more detail. The word knowledge worksheet had four columns in which participants marked with an x each word they knew. In the first column participants wrote the word or unknown words. The second column heading is: "I know what this word means." The third column is: "I have seen or heard this word," and the fourth column is: "I don't know what this word means."

At the bottom of the word knowledge worksheet, participants checked off boxes indicating whether they had practiced saying each word aloud and practiced spelling each word aloud. After participants completed the word knowledge worksheets, a discussion took place. After participants marked the words they did and did not know, they used a dictionary to find the meaning and write a sentence about the word. The participants then reflected and wrote a sentence containing the unknown word. The participants used the word wrap to continue this lesson.

After discussion, the RT explained how to use the word wrap worksheet (see Appendix A). The students had pencils, chart paper, word wrap, and word knowledge student worksheets to complete this task. The word wrap and word knowledge worksheets are graphic organizers that help participants produce word meanings. Participants used the word wrap sheets to write down unknown words. They then found the word meanings using dictionaries. The participants answered the questions in the word wrap worksheet that pertained to the unknown word. The first word wrap sheet, which is identified as V.017.SS1, contains questions such as, “what’s this?” and “what is it like?” The participants wrote their answers on the word wrap worksheet. The participants also developed a sentence about the unknown word. After completing this first word wrap worksheet, the RT and participants discussed the unknown word and repeated the task by using the second word wrap worksheet, which is identified as V.017.SS2. On the second word wrap worksheet, students are asked to write the unknown word and answer three questions (a) “what are some examples?” (b) “what is it?” and (c) “what is it like?” Participants completed the second worksheet and the RT

then facilitated a discussion with them. After discussion, the RT instructed participants to keep their worksheets in folders with their names written on them and to put the folders on the side of their desks. The RT introduced the next step of vocabulary acquisition, which was modeling.

The RT created a modeled poster paper that includes samples of the completed work task from the word wrap. A discussion of what has been learned was conducted, and then the RT read the second book again aloud and discussed with students what they had learned so far from the first step. After re-reading and discussing the second book, the RT instructed participants to complete the word wrap and word knowledge worksheets on their own. The RT posted a completed word wrap and word knowledge worksheets as models for students so they could complete the task with minimal guidance. After participants completed the word knowledge and word wrap worksheets on their own, they discussed what they had written on the worksheets. The RT conducted a discussion that focused on the unknown words, as well as what participants had written on their word wrap worksheets, to review what they had learned so far. After discussion, the RT instructed participants to gather into two groups of four for the third step, which was the collaborative task.

During the third task of vocabulary acquisition and writing, the RT had participants work in groups in which they collaborated to repeat the tasks presented above. The participants read the second book on their own and completed the word wrap and word knowledge worksheets together. Participants were provided a sample of the writing persuasive letter worksheet, which can be found in Appendix A. The RT

explained how to use this worksheet, and participants then completed the collaborative task. The writing persuasive letter is a graphic organizer that encourages participants to collaborate and share their ideas about the meaning of the unknown words in the story. The letter also provides participants an opportunity to apply the skills they had just learned. The group worked for 30 minutes to complete this task, and the RT monitored this activity. The RT and participants discussed their experiences and the RT encouraged participants to make inferences about the story, and then write a summary of the story using the writing persuasive letters worksheet. The RT collected the worksheets and instructed participants to get ready for an individual task, which was the fourth step of the vocabulary acquisition and writing step. The RT posted the group work (the word wraps, word knowledge, and writing persuasive letter) on the board so participants could use it as a guideline when completing the individual task.

During the fourth task of vocabulary instruction, students repeated the task of reading the second story on their own. After reading the story, participants completed the word wrap, word knowledge, and write a persuasive letter tasks using what they had learned during the vocabulary acquisition instruction. In addition to using the examples of the group work posted by the RT, participants were allowed to use their previous work as guidance while completing the independent task. The RT monitored the activity until participants completed this step. Participants' worksheets were then collected, and the RT ended the vocabulary acquisition and writing instruction. The CBM-Reading Maze was administered to all participants and the building reading fluency was introduced. I helped by scoring the Maze and entering scores in the Aimsweb database.

Building reading fluency and writing. Reading fluency has been defined as reading accurately, automatically, and effortlessly (Hudson, Pullen, Lane, & Torgesen, 2009). Min (2008) suggested that when students read passages at least four or five times there is an increased chance that vocabulary and other information can be acquired and retained. Repeated reading has a functional relationship with increasing reading fluency and comprehension skills (Savaiano & Hatton, 2013). Landerl and Wimmer (2008) emphasized the importance of having students read repeatedly to build their reading fluency and comprehension skills, and found that there is a strong correlation between reading fluency and reading comprehension when students read repeatedly. In addition, when individuals read repeatedly, routine is being established; practiced reading increases their reading comprehension skills (Block et al., 2009; Swain et al., 2013). Hence, the next component of the RCIP was repeated reading in order to build the participants' reading fluency. In this component, group, peer, and individual reading were implemented using the third book, *The Country of Chile* by Cantu (n.d.).

The RT read the third book aloud to participants in a group setting and solicited input from participants about words they did not understand and then wrote them on the board. The RT then asked participants to complete the word wrap and word knowledge worksheets. Afterwards, the RT and participants discussed what the participants had written on their word wrap and word knowledge worksheets. After the discussion, the RT conducted a group reading session in which each participant reads a paragraph. The group reading session continued until the entire book had been read. During group reading activities, the participants and the RT engaged in the following reading strategies:

answering questions, paraphrasing, making inferences, clarifying, and summarizing the story. After the group reading was completed, the read and ask worksheet was distributed.

The purpose of completing the read and ask worksheet was to monitor participants' understanding of the third storybook. The RT engaged participants through questioning and answering using the question cube, which is explained below, and the read and ask worksheet. The participants answered the following questions to clarify the story and to teach them how to make inferences. The questions in the read and ask worksheets consist of the following: "What do you think is going to happen next? Did you understand what you just read, why or why not? Discuss any words that you may not have known. What you just read, how does it relate to your own life? Based on what you read, what are you curious or interested in knowing more about the story?" and "Summarize what you just read." After participants completed the read and ask worksheet, the RT discussed the worksheet and engaged participants in brainstorming and collaboration utilizing the questions above. Afterwards, the RT and participants followed the question cube instructions to prepare them for peer reading. The questions on the cube are the same questions used in the read and ask worksheet. Participants were allowed to use their read and ask worksheet responses to the same questions noted previously; the only substantial difference was that they were now in cube format.

Question cube instruction:

1. Place text and question cube at the center activity table and provide each student with a read and ask worksheet.

2. Taking turns, the students read entire text aloud.
3. Roll the question cube, read the question, and answer it based on the text.
4. Discuss answer with a partner.
5. Continue the activity until all the questions are answered at least once.
6. Peer evaluation.

After the RT and participants completed reading the instructions for the question cube and evaluated their responses, the RT instructed participants to work in pairs so that peer reading could be implemented.

In peer reading, participants took turns reading the third storybook. The RT provided instructions about what had to be done in this task. The RT and participants practiced together to help familiarize themselves with the worksheets. The participants worked on the *read and read* worksheets to help monitor their reading fluency. Each participant recorded his or her word read correct per minute (wcpm). Participants switched back-and-forth, taking turns reading and monitoring one another's progress. The goal was for participants to identify how many words they can read correctly per minute. As indicated earlier, providing repeated reading to individuals builds routine and practice. Repeated reading helps them practice reading to help improve their reading fluency and comprehension skills. Participants timed their repeated readings and graphed words read correct per minute using the read and read worksheets, which can be found in Appendix A. The instructions for the read and read worksheet are as follows:

1. Provide each student with a copy of the text, reading record (F.025.SS1), and words correct per minute graph (F.025.SS2). Place the timer at the center of the table activity.
2. Working in pairs, Student 1 sets the timer for one minute and orally reads the text. Student 2 follows along, using a marker to mark words read incorrectly.
3. Continue reading until the timer goes off. Student 1 completes the reading record and words correct per minute graph with the assistance of Student 2.
4. Student 1 rereads the text two more times, attempting to increase speed and accuracy.
5. Reverse roles and continue the activity.
6. Peer evaluation.

After peer reading, the RT repeated the question cube activity to facilitate discussion and monitor for understanding. The RT then instructed participants to complete the retell-a-story worksheet, which is identified as C.009.SS, so that the individual reading could be implemented. The retell-a-story worksheet is a graphic organizer that focuses on participants' retelling the story. On the retell-a-story worksheet, the participants were asked to identify the title, author, and story sequence such as beginning, middle, and end of the third storybook. At the beginning section, participants retold the story by doing the following: identifying and writing who the main characters were; explaining where and when the story took place, and describing what happened in

the beginning of the story. In the middle sequence section, participants retold the story by answering the following questions: “What happens in the middle of the story? What is the problem? What does the main character do?” At the end sequence section, participants retold the story, answering the following questions: “How was the problem solved? How does the story end?”

Finally, students engaged in individual reading sessions. Each student reads the third storybook, *The Country of Chile*, individually and silently. The RT instructed students to repeat the tasks that were completed in the group reading, and then facilitated discussions of what they had learned during group reading in order to review the previously learned materials. During this individual reading, students read the story on their own after reviewing the previously learned materials. The students completed the word knowledge, word wrap, and read and ask worksheets, and recorded their reading in the read and read worksheet (F.025.SS1) under the second reading section. Afterwards, participants completed the retell-a-story worksheet based on their understanding of the third storybook. The participants were allowed to use their previous work as a guideline while working independently. The RT monitored the participants’ independent work and was available to answer questions to help students understand more about the given task. After participants completed the individual reading, discussion and brainstorming were once again facilitated. The RT instructed participants to write a persuasive letter based on what they had learned from the tasks related to the third storybook. Students were encouraged to paraphrase and summarize what they had read. Afterwards, the RT collected all participants’ work and set it aside for later review.

After the independent work was accomplished, the RT and I worked with participants individually to measure their reading fluency. Participants were instructed to read the third storybook. Using the read and read again worksheet (F.025.SS1) under the third reading section to record individual reading words per minute, the RT and I timed the participants while they were reading. With my help, the RT conducted a brief discussion just to provide feedback on the participants' performances on this reading. Afterwards, the RT administered the CBM-Reading Maze to the group. The CBM-Reading Maze could be administered individually, to small groups, or to classroom groups (Shinn & Shinn, 2002). I scored the Maze and entered the results in the Aimsweb database. The RT concluded the repeated reading instruction without my assistance.

The final stage of the RCIP was to integrate everything the participants had learned during the intervention. The RT once again instructed students to complete the story-mapping worksheets. The RT provided only minimal guidance during this instruction, but students were allowed to use their previous work to complete this task. Afterwards, the RT administered the CBM-Reading Maze to conclude the intervention. I scored the worksheets and entered the data in the AIMSweb database.

Instruments and Scoring

The curriculum-based measurement reading maze (CBM-Reading Maze) is a measure of general reading ability. The CBM-Reading Maze was first developed by Stanley Deno over 20 years ago to help educators improve students' performances and to identify growth in their basic reading skills (Fuchs & Fuchs, 2009; Shinn & Shinn, 2002). The CBM-Reading Maze can be administered to individuals, small groups, or whole

classes. The reading passages must have at least 250 words. In each passage, the first sentence is left intact; afterwards, every seventh word is replaced with three word choices inside parentheses using the cloze format test items. Students were allowed three minutes to complete the task. The CBM-Reading Maze benchmark was 20 word replacements per 3 minutes (Fuchs & Fuchs, 2009; Shinn, Shinn, & Langell, 2001). The CBM-Reading Maze is scored by the number of correct words circled in the 3 minute period. The CBM-Reading Maze was used in conjunction with the Aimsweb software, which generated a score and monitored progress during the study (Shinn, 2008). According to Shinn (2008), the CBM-Reading Maze has sensitivity to growth and good reliability and validity. Hence, the CBM-Reading Maze was used to measure the impact of the RCIP on reading comprehension. Details about scoring the CBM-Reading Maze can be found in Appendix C.

Reliability and Validity of the Instrument

The CBM was the assessment method used for this study. The CBM is a method designed to measure growth and progress development in specific curricula, and it provides direct repeated measures of students' performances over time (Fuchs & Fuchs, 2004; Hale et al., 2006). The CBM was developed by Stanley Deno at the University of Minnesota in the 1980s. Its reliability has been shown to be strong (Christ & Silberglitt, 2007) Although there were few published estimates of reliability in the research literature, Christ and Silberglitt (2007) stated that the "test-retest reliability for individual probes ranged from .56 to .96, and median estimates across three problems range from .89 to .97" (p. 132). The CBM has different specific measures such as the CBM-Reading

or Oral Reading Fluency (ORF), CBM-Writing, CBM-Mathematics, and CBM-Reading Maze. Therefore, in this study, the CBM-Reading Maze was used to assess the story mapping and the RCIP, which included the vocabulary acquisition, reading fluency, writing and adding them to the story mapping instruction.

The CBM-Reading Maze was accessed through the AIMSweb subscription I purchased for the RT. The AIMSweb is software that “provides a testing and improvement management system via the Internet” (Shinn & Shinn, 2002, p. 8). The AIMSweb software can be used to provide information to schools about students’ progress and achievement and, by extension, the effectiveness of academic instruction. The R-CBM is used in Reading First as identified by the Secretary of Education’s Committee on Reading Assessment and the Office of Special Education Program’s National Center for Student Progress, Monitoring (Shinn & Shinn, 2002). The AIMSweb software was used to help monitor students’ progress and was an important tool for this study because it facilitated the entry of the data collected, and then scored, graphed, and generated printouts, enabling a visual examination of the baseline data and the results of the general outcome of implementing the story mapping alone and the RCIP.

Threats to Internal Validity

Internal validity refers to the number of attributed factors which could influence the independent variables or the interventions (Cooper et al., 2007; Rassafiani & Sahaf, 2010). Christ (2007) explained that when the findings have been influenced by extraneous variables the internal validity of a study suffers. In addition, the main goal of

an empirical study is to show that the systematic manipulation of the independent variables leads to the general outcomes for the dependent variables.

In this study, there are five possible threats to internal validity: maturation, mortality (attrition), history, testing, and instrumentation. Researchers can only strive to minimize the impact of extraneous variables, but these threats cannot be completely ruled out in this study. The first threat to internal validity is maturation. Maturation refers to changes that occur in students' physiological well being, growth, and developmental levels due to the passage of time (Mitchell & Jolley, 2004). The effects of maturation may not be ruled out as possible sources of any changes in the participants' reading comprehension skills. Physiological changes occur naturally, and participants may have made cognitive gains due to exposure in other areas of this study or due to exposure to instruction in their regular classroom settings. However, maturation is less of an issue in a short-term study (Christ, 2007), and due to the short duration of this study, maturation effects may be considered minimal.

The second threat to internal validity is mortality or attrition. Mortality or attrition occurs when participants drop out of a study for any reason (Jaccard & Becker, 2002). For example, participants may decide to quit the study or they may become ill and unable to participate. Jaccard and Becker (2002) suggested combatting the effects of mortality or attrition by adding more participants ($\geq 10\%$) to the calculated minimum sample size in order to safeguard against failing to have complete data sets from the necessary minimum sample size. Data from at least six participants were needed for my study, so eight participants were selected to compensate for the possibility of attrition. The third threat to

internal validity is history. History refers to changes between the pretest and posttest conditions due to environmental factors rather than the treatment (Mitchell & Jolley, 2004; Rassafiani & Sahaf, 2010). History may not be a threat to internal validity of this study because the results could be influenced by some environmental changes such as the RT being absent or that an unforeseen event occurs within the classroom. To combat the effects of history in the study, all interventions were provided to participants in a single setting (Mitchell & Jolley, 2004; Rassafiani & Sahaf, 2010).

The fourth threat to internal validity of a study is testing. However, testing may or may not have been a threat to the internal validity of this study. Christ (2007) defined testing as a measurement procedure that might affect participants' performances due to observer or practice effects. Testing might have affected this study because the CBM-Reading Maze was administered often. To minimize the testing practice effect, the CBM-Reading Maze was only administered once a week. According to Falleti, Maruff, Collie, and Darby (2006), practice effects could be minimized by administering a test no more than once per week.

The fifth and the last threat to internal validity of this study is instrumentation. Instrumentation changes occur when tests are inconsistently administered to participants (Christ, 2007). When this happens, changes between the pretest and the fastest results can be attributed to changes in the measuring instrument, which biases the data. In my study, administration of the CBM-Reading Maze followed precisely the instructions on how to administer the CBM-Reading Maze, thereby maximizing consistency. The administration

across the various data collection points was identical. The CBM-Reading Maze was administered in group settings after each of the instructional components of the RCIP.

According to Rassafiani and Sahaf (2010), there are three important factors to consider when attempting to increase internal validity. First, researchers must use reliable and repeated measures for the duration of the study. Second, the baseline must be stable and include at least three data points prior to introducing an intervention (Christ, 2007; Rassafiani & Sahaf, 2010). Third, a study should only have one independent factor that is being manipulated. In this study, there were several independent variables; however, they were manipulated one at a time to minimize threats to internal validity.

Confounding Variables

Confounding variables are variables that are unintentionally manipulated while providing treatment (Mitchell & Jolley, 2004). One confounding variable that was considered before commencement of the study was that students might not be fully cooperative. When students are expected to participate in a study willingly, they would not need encouragement to cooperate. However, if participants chose not to fully cooperate, offering or providing incentives would confound the results of the study; separating effects resulting from the intervention from those caused by rewards would be impossible. Additionally, it was possible that participants would be unwilling to read. Participants were chosen based on low reading abilities, but if they were unwilling to read, it would appear that no progress had been made, skewing the results and leading to the conclusion that the intervention was less reliable than it might otherwise have been. The confounding variables for this study were difficult to anticipate because participants

were selected in accordance with their reading level as indicated in the FCAT results. In addition, I could only assume that confounding variables would appear and that I would have to be vigilant with respect to recognizing and eliminating them whenever possible.

Measures Completed to Protect Participants' Rights

American Psychological Association standards 4.01: Maintaining Confidentiality and 4.04: Minimizing Intrusion of Privacy (APA 2002, 2010) was applied in this study. In order to maintain confidentiality participants' data would be maintained and locked in a file cabinet for at least 5 years. To minimize potential intrusion on privacy, no individually identifiable information was attached to the collected data. Instead, an assigned letter was used to identify each participant in order to protect their privacy. Informed consent forms were separated from the data collected to prevent identification of the participants. While analyzing the data, codes were used to report the differences between participants in anticipation of reporting the general outcome of this study. These codes protected students' information even if the stored data was breached. The data collected for this study is stored in the password-protected AIMSweb database for 5 years. I would be the only one having access to the information. Although the AIMSweb database has firewall and storage protection, even in the event of a breach the participants' privacy will be secured because the data is coded.

The disclosure of personal and confidential information is carefully controlled in this study; however, an informed consent form must contain a detailed and concise explanation of the extent and limits of confidentiality. If a participant reports being abused, is in imminent danger, intends to cause serious harm to others, or expresses

suicidal ideation, I am legally required to report the situation. Participants were allowed to ask questions at all times and could withdraw from the study at any time without explanation or consequence. The study must be designed such that participants will not be harmed or exploited. It was anticipated that this study would benefit participants by improving their reading comprehension skills. As a researcher, I have made every reasonable effort to safeguard and treat participants with respect and dignity (APA, 2002, 2010). Furthermore, the IRB approved this study in which the number is 05-29-15-0103154.

Summary

In this chapter, the research design, methodology, procedures for implementing interventions, and ethical treatment of participants, including informed consent and confidentiality, have been discussed. Many researchers have identified the need to develop interventions to increase reading comprehension (Rapp et al., 2007; Sencibaugh, 2007). Rapp et al. (2007) stressed the importance of designing and implementing interventions or instructions that would help students improve their reading comprehension skills. They also noted that basic and higher-order skills in reading must be developed independently, simultaneously, and with the use of metacognitive skills. In addition, the US Department of Education urged educators to investigate other ways to develop instruction that help increase students' reading comprehension skills (Begeny & Martens, 2006; Rapp et al., 2007). They suggested that an instruction solely for reading comprehension is needed; one that could become the natural domain in reading instruction (Begeny & Martens, 2006).

My study was designed to investigate whether RCIP that focuses on developing skills such as vocabulary acquisition, reading fluency, and writing, added to the story-mapping technique, would increase students' reading comprehension skills. Research has shown that vocabulary acquisition enhances an individual's reading comprehension (Mariotti, 2010). Mariotti (2010) suggested that having a good vocabulary promotes strong vocabulary acquisition, particularly if students are exposed to words repeatedly. Repeated reading improves students' reading fluency and reading comprehension skills (Han & Chen, 2010). Musti-Rao et al. (2009) emphasized the benefits of using repeated readings as a remediation reading strategy to help students increase their reading fluency and comprehension skills. Klauda and Guthrie (2008) reported that word reading speed has a significant effect on reading comprehension. In addition, research has shown that writing is a good way of organizing thoughts and knowledge, allowing students to be more actively engaged in building their comprehension skills (Alkhaldeh, 2011; Li, 2007). In my study, writing was incorporated into the RCIP instructional components, particularly in the story-mapping strategy. Story mapping is a graphic organizer in which students respond to different elements by answering the who, where, what, when, why, and how, to help them understand what they are reading (Grunke et al., 2013; Li, 2007).

In my study, the MPD and CBM-Reading Maze were utilized to collect data and measure the effectiveness of interventions (e.g., story mapping and RCIP). The single-case experimental MPD was used to collect data intermittently. The CBM-Reading Maze, in conjunction with the Aimsweb software, was used to measure participants' reading comprehension and monitor their progress. This software generated graphs that could be

analyzed visually. Visual analysis was used to interpret and explain the results using the PND.

Overall, this study was used to investigate whether the implementation of the RCIP and story mapping alone could be useful instructional strategies for improving childrens' reading comprehension. Previous research has shown that when implemented alone, vocabulary acquisition, reading fluency, writing, and story-mapping strategies are effective in increasing reading comprehension skills (Fagella-Luby et al., 2007; Klauda & Guthrie, 2008; McCurdy et al., 2008; Proctor et al., 2007). However, I did not find in the extant literature any studies designed to determine whether combining multiple instructional strategies in one reading instruction might be effective in helping students increase their reading comprehension skills, rather than just using one intervention. In my study, the story mapping and the RCIP were implemented as the interventions with multiple instructional approaches. The multiple interventions with multiple instructional approaches seemed more powerful in helping students improve their reading comprehension than the delivery of single interventions as suggested in many researches (Begeny & Silber, 2006; Bui & Fagan, 2013; Mahdavi & Tensfeldt, 2013; Rapp et al., 2007). The results of this study are discussed in Chapter 4.

Chapter 4: Results

Introduction

In the current study I conducted a secondary analysis of an implementation of a RCIP that consisted of vocabulary acquisition, reading fluency, and writing, combined with story mapping to measure the effects this intervention had on students' reading comprehension skills. A MPD was used across subjects. The CBM-Reading Maze, a measure of reading comprehension, was used to collect the number of correct responses per 3 minutes during baseline and treatment conditions. Four research questions were tested in this study. Research Questions 1 and 2 pertained to examining the main effects of implementing the instructional strategies of RCIP and story mapping on students' reading comprehension skills. Research Question 3 concerned identifying the interaction effects of implementing the instructional strategies of RCIP and story mapping on students' reading comprehension. Research Question 4 addressed whether there were differences in students' reading comprehension skills when implementing the RCIP compared to the story mapping instruction alone. This chapter contains a summary of the results of implementing the RCIP and the story mapping to students with reading comprehension problems. It also contains a description of participants sampled in this study, a discussion of the treatment fidelity, and findings from the analyses conducted.

Collected Data

The time available to implement various components of the story mapping and the RCIP, the recruitment criteria, and the sample size deviated from the original data collection plan. The actual recruitment and wait for responses in this study took 5 weeks

instead of 6 weeks. The study proposal indicated instruction would occur 30 minutes per day, 5 days per week, for 6 weeks; a total of 900 minutes ($30 \times 5 \times 6 = 900$). The baseline and intervention portions were supposed to be implemented for a total of 750 minutes ($5 \times 30 \times 5 = 750$); instead, baseline, story mapping, and the RCIP were completed in 720 minutes (45 minutes per day, 4 days per week, for 4 weeks). The variance occurred because the summer school program was only scheduled 4 days a week instead of 5, and only 5 weeks instead of 6.

Moreover, the recruitment of participants changed. The study proposal contained criteria to recruit participants based on FCAT scores below Level 2; this criterion was not used because Florida discontinued use of the FCAT and changed to the Florida Standard Assessment (FSA). The FSA data were not available until the following school year in 2015-2016. Instead, the school recruited the participants based on their reading benchmark of below grade reading level and at risk for retention. The school principal provided a list of students falling in the below grade reading level and at risk for retention. Thirty six invitation letters were sent out to the parents of students who were at risk for grade retention. Only six parents accepted the invitation to participate in this intervention study.

In addition, the proposed study required a minimum of eight participants to compensate for potential attrition (Jaccard & Becker, 2002). However, this number of participants was not achieved because when the school sent out invitations (as required by the school district) to inform parents of the extra interventions pertaining to this study, only six invitation letters were returned. Lipsey and Wilson (1993) found in their study

that the effect size of .60 in academic achievement would be sufficient to detect a large effect size. Using the G*Power when calculating the sample size, the effect size of .60, an alpha level of .05, and a power of .80 revealed that a minimum sample size of six participants was sufficient for the study (Faul et al., 2007). The participant group of third-grade students comprised three females and three males, all of whom were selected because they were at risk for retention and performing below their reading grade level. These participants were assigned the designators CB, KC, JL, AH, JC, and RB to protect their identities. One participant was Hispanic and the others were African American students.

During the last 2 weeks of the intervention for the RCIP, two students, JC and RB, both African American males, dropped out of the study; one moved out (JC) of the school district and one had a family emergency (RB). No data for the RCIP implementation were collected for these two students. However, the data for the story mapping were completed and data from these two students were reported and analyzed. Participation of the other four students, one male (JL) and three females (CB, KC, and AH) continued until the completion of the RCIP. Having fewer participants than the minimum required seemed problematic; however, because the research design is a SCED, having four participants was still sufficient for the study. According to researchers, three to eight participants are considered an appropriate sample size when conducting a SCED study (Gillis & Butler, 2007; Stagliano & Boon, 2009). Therefore, having four participants complete the study was acceptable.

Treatment and/or Intervention Fidelity

At the beginning of the study, three data points from the CBM Reading Maze correct response per 3 minutes were collected for the baseline, and then implementation of the story mapping began. The task analysis was used to break the story mapping into steps. Those steps were developed into a checklist, and the RT used it to monitor the completion of implementing the story mapping instructions. Hott, Limberg, Ohrt, and Schmit (2015) reported the use of a checklist to monitor fidelity of treatment. Hott et al. emphasized that 90% or higher agreement was recommended to assess the accuracy of treatment fidelity. In this study, there were 18 steps or instructions that the RT was instructed to follow in the story mapping. Of the 18 steps, 17 were followed as stated in the story mapping instruction; one was not fully followed because of time restrictions; therefore, the treatment fidelity of implementing story mapping was 94% ($17/18 = 0.94 \times 100 = 94\%$) accuracy instead of 100%. The accuracy of treatment fidelity was calculated using the total agreement formula. The total agreement was calculated by determining the least amount of time divided by the greater amount of time, multiplying by 100 (Hott et al., 2015). The treatment fidelity data were collected once at the end of the story mapping intervention. The data that were collected revealed the intervention was implemented with fidelity

The RCIP was introduced after the story mapping. The task analysis was used again to break the RCIP components into steps. Those steps were developed into a checklist also and used to assess the treatment fidelity of this intervention. The vocabulary and writing components, which had 35 steps, were implemented first and the

task analysis showed 100% implementation of this part of the RCIP. The repeated reading for reading fluency and writing was implemented next. The repeated reading had three components: group reading, peer reading, and independent reading, which combined had a total 33 steps. The group reading and the peer reading comprised 20 steps, and the RT implemented them with 100% accuracy. The RT completed the RCIP instruction with 100% accuracy without the independent task. Overall, the implementation of the story mapping and the RCIP were completed with fidelity, and no adverse events related to the intervention occurred.

Results

The primary purpose of this study was to examine quantitatively the effect of implementing the RCIP on third grade students' comprehension skills. To examine the effects of the intervention, data were graphed and visually analyzed. When looking at the data for the effectiveness of the story mapping and the RCIP interventions, the PND were used. The PND was calculated and identified for each individual student using the highest baseline point and counting the number of intervention data points that were above the highest baseline point (nonoverlapping). The PND score was calculated by dividing the total number of points earned by the amount of data collected and then multiplying by 100 (Bui & Fagan, 2013; Fuchs & Fuchs, n.d.). The PND is scaled from 0 to 100%; a 50% overlap indicates unreliable or ineffective intervention; 50 to 70% overlaps are questionable or instructional effectiveness is minimal; 70 to 90% nonoverlaps are fairly effective or moderately effective; 90% indicates the instruction was highly effective; and a 100% overlap indicated no difference due to instruction or not

effective instruction (Becker, n.d.; Campbell, 2004; Sullivan & Fein, 2012; Wendt, 2009).

In addition, to determine the main effects of the interventions, the magnitude of the interaction effects from baseline to treatment conditions, and their differences (Story Mapping and RCIP) was calculated using the Cohen's d and Glass V effect sizes (ES). The Cohen d and Glass V effect sizes were used as follows: small ($d = 0.20$; 15% PND), medium ($d = 0.50$; 33% PND), and large ($d = 0.80$; 47% PND; Becker, n.d.; Sullivan & Feinn, 2012). In addition, the absolute effect size of the difference between the story mapping and the RCIP was used for calculation. The absolute effect size was calculated using the following formula to determine the difference between two interventions: $(\text{Intervention 1} - \text{Intervention 2}) / \text{number of sample data points}$ (Sullivan & Fein, 2012). Furthermore, when data points progress in the positive or upward direction of the trend lines, this indicates interventions are effective. If scores move in the negative or downward direction of the trend lines, then the effectiveness of interventions is decreasing. If data are 0% or 100%, the results have overlapped, indicating no difference or no interactions on the interventions. Further detailed information on Cohen's d equivalent to PND (Becker, n.d.) is shown in Table 1.

Table 1

Cohen d and PND Effect Size

Cohen's <i>d</i> standard	Effect size	Percentage of nonoverlap
Large	2.0	81.1
Large	1.9	79.4
Large	1.8	77.4
Large	1.7	75.4
Large	1.6	73.1
Large	1.5	70.7
Large	1.4	68.1
Large	1.3	65.3
Large	1.2	62.2
Large	1.1	58.9
Large	1.0	55.4
Large	0.9	51.6
Large	0.8	47.4
Medium	0.7	43.0
Medium	0.6	38.2
Medium	0.5	33.0
Small	0.4	27.4
Small	0.3	21.3
Small	0.2	14.7
	0.1	7.7
	0.0	0

The figures and tables that follow display the results as they relate to the research questions and hypotheses. The data from correct responses per 3 minutes were determined by administering the CBM-Reading Maze to all participants. The data were scored and entered in the Aimsweb database. The data of all participants are presented in the tables and graphs. The data were visually analyzed and interpreted using the guidelines for PND and the effect sizes listed in Table 1.

According to CB's graph and table (see Figure 1 and Table 2), she was expected to have a growth of one additional response correct per week. According to the AIMSweb National Norm, for third grade students who fall in the 50th percentile, using the CBM-Maze Comprehension, the Winter benchmark should be 15 and the Spring benchmark should be 16, thus indicating that one additional correct response is expected. Therefore, in 4 weeks, if CB had an initial baseline of 12, the expected growth would be one additional response correct ($[16-12]/4 = 1$) per week to achieve 16 correct responses. CB obtained an actual performance of a 1.08 additional responses correct per week, thereby achieving her goal.

When calculating the effect size ($[X_t - X_c]/SD$) of the PND to determine the effectiveness of the story mapping ($M1 = 19$; $SD = 7.07$) and the RCIP ($M2 = 18.75$ $SD = 5.62$) compared to the baseline ($M_b = 14.33$; $SD = 2.08$). The results showed for story mapping ($ES=0.41$; 27.4% PND) and the RCIP ($ES =0.46$; 27.4% PND) were both small. The trendline for CB's had a positive direction for story mapping, but decreasing for the RCIP. However, even though the RCIP trendline was slowly going down, the results of the effect size were still small. This means that the story mapping and the RCIP had an

impact on increasing CB reading comprehension because her scores surpassed the expected growth of 16 by three points. However, the impact on increasing CB's reading comprehension was not statistically significant. Therefore, this study rejected the null hypotheses for Research Questions 1 and 2.

Research Question 3 concerned the interaction effects of implementing the instructional strategies of RCIP and story mapping on reading comprehension skills. When calculating the effect size ($[X_t - X_c]/SD$) of the PND to determine the interaction effects between the story mapping and the RCIP when compared to each other. The effect size for this interaction is 0.02, which is equal to 0% PND; therefore, the null hypothesis is accepted, indicating no interaction effects between the story mapping and the RCIP.

Research Question 4 involved determining the differences in performance between the story mapping and the RCIP condition. The absolute effect size was used to identify the difference between the story mapping and the RCIP. The RCIP mean average ($M = 19$) was subtracted from the story mapping mean average ($M = 19$) and dividing the results by 2. The results showed a 0 effect size or 0% PND, indicating no difference between the story mapping and the RCIP, therefore accepting the null hypothesis.

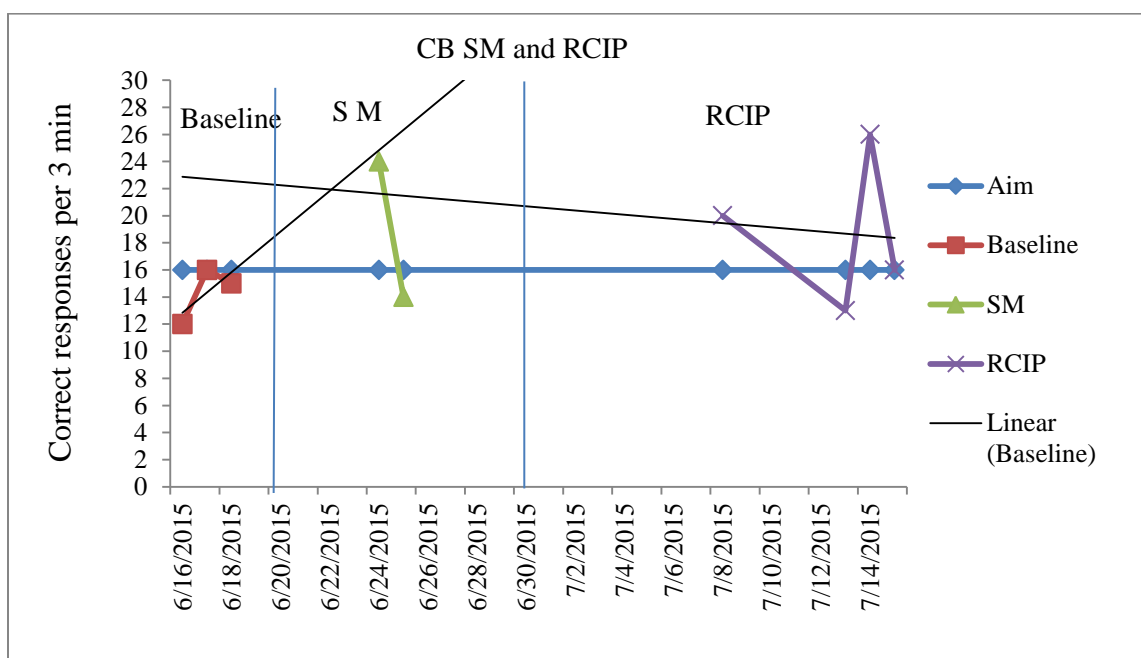


Figure 1. CB story mapping and RCIP results. From the Aimsweb data output using the norm and the suggested CBM-Reading Maze benchmark. Goal Statement: In 4 weeks, CB will achieve 16 responses correct from Grade 3 Maze-Comprehension. The rate of improvement should be an average of 1 response correct per week. The actual average rate of improvement was 1.08 responses correct per week.

Table 2

CB BM-Maze: Number of Correct Responses Per 3 Minutes

Conditions	Baseline/Interventions	Expected growth	PND	Effect size
Baseline	12	16		
Baseline	16	16		
Baseline	15	16		
SM	24	16		
SM	14	16	27.4%	Small
RCIP	20	16		
RCIP	13	16		
RCIP	26	16		
RCIP	16	16	27.4%	Small

Note. The PND is identified using the highest baseline point and counting the number of intervention data points that are above the highest baseline point (nonoverlapping).

The PND score is calculated by dividing the total number of points earned by the amount of data collected, and multiplying by 100 (Bui & Fagan, 2013; Fuchs & Fuchs, n.d.). Expected growth was derived from the AIMSweb National Norm Table at the 50th percentile, for CBM-Reading Maze-Comprehension, Third Grade, using the Winter to Spring Benchmark. Effect size was derived from the Cohen's *d* and Glass *V* reported by Sullivan and Feinn (2012) and Becker (n.d.).

Table 3 and Figure 2 present results of the data analysis for JL. According to the AIMSweb National Norm, for third-grade students who fall in the 50th percentile, using the CBM-Maze Comprehension, the Winter benchmark is 15 and the Spring benchmark is 16; given that, one additional correct response is expected. Therefore, if JL initially had a baseline of 9, in 4 weeks the expected growth would be 1.75 ($[16-9]/4 = 1.75$) additional responses correct per week to achieve 16 correct responses. JL obtained an actual performance of 0.98 additional responses correct per week; therefore, he missed achieving his goal.

When calculating the effect effect size ($[X_t - X_c]/SD$) of the PND to determine the effectiveness of the story mapping ($M = 19$; $SD =$ unable to calculate due to missing data) and the RCIP ($M = 16$ $SD = 2.65$) compared to the baseline ($M_b = 14.33$; $SD = 2.08$). The RCIP ($ES = 0.32$; 21.3% PND) was found to have a small effect size therefore, the Research Question 1 is rejected. The results showed for story mapping ($ES =$ missing data) could not be interpreted due to missing data; therefore, the hypothesis research question 2 was unknown. JL's RCIP trend line was below the baseline, but went up slowly, and then a small magnitude of decrease occurred. The results indicated that the RCIP had some impact on increasing JL's reading comprehension.

Research Question 3 addressed the interaction effects of implementing the instructional strategies of RCIP and story mapping on reading comprehension skills. A

data point for SM was missing from JL's data. Therefore, the results could not be interpreted due to missing data.

Research Question 4 concerned the differences between the story mapping and the RCIP conditions, in which the absolute effect size was used to calculate the differences between these interventions. The RCIP mean average ($M = 16$) was subtracted from the story mapping mean average ($M = 14$) and dividing the results by 2. The results showed no difference between them, in which the effect size was 1.0 or 100% PND indicating an overlap between the two interventions, therefore, the null hypothesis for Research Question 4 was accepted. Reviewing JL's relative gain when compared from the baseline average score (13) to the treatment condition average scores (SM = 14; RCIP = 16) reveals he still made gains from his baseline score. However, his gains were not statistically significant. He achieved his expected growth for the RCIP. However, he did not achieve the expected growth goal of having 16 correct words per 3 minutes for the story mapping.

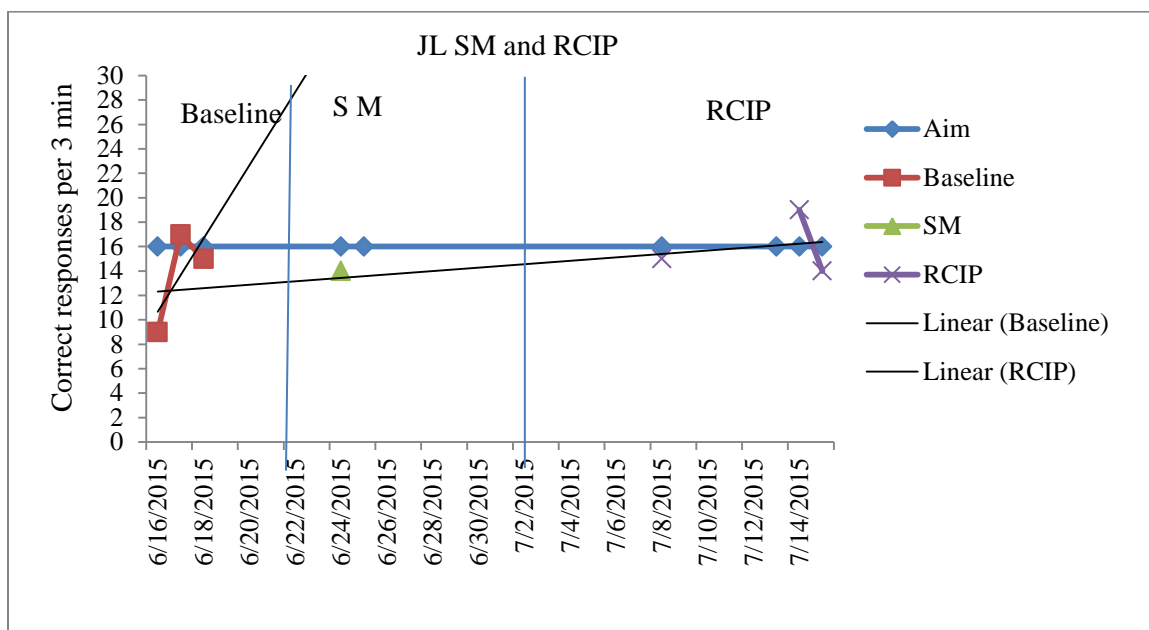


Figure 2. JL story mapping and RCIP results. From the Aimsweb data output using the norm and the suggested CBM-Reading Maze benchmark. Goal Statement: In 4 weeks, JL will achieve 16 responses correct from Grade 3 MAZE - Comprehension. The rate of improvement should be 1.75 responses correct per week. The actual average rate of improvement was 0.98 responses correct per week.

Table 3

JL CBM-Maze: Number of Correct Responses Per 3 Minutes

Conditions	Baseline/Interventions	Expected growth	PND	Effect size
Baseline	9	16		
Baseline	17	16		
Baseline	15	16		
SM	14	16		
SM	missed ^a	16	Unknown	none
RCIP	15	16		
RCIP	missed ^a	16		
RCIP	19	16		
RCIP	14	16	21.3%	small

Note. The PND is identified using the highest baseline point and counting the number of intervention data points that are above the highest baseline point (nonoverlapping). The PND score is calculated by dividing the total number of points earned by the amount of data collected, and multiplying by 100 (Bui & Fagan, 2013; Fuchs & Fuchs, n.d.). Expected growth was derived from the AIMSweb National Norm Table at the 50th percentile, for CBM-Reading Maze-Comprehension, Third Grade, using the Winter to Spring Benchmark. Effect size was derived from the Cohen's *d* and Glass *V* reported by Sullivan and Feinn (2012) and Becker (n.d.).

^aData is missing because JL was absent due to illness.

Figure 3 and Table 4 present results of the data analysis for KC. According to the AIMSweb National Norm, for third grade students who fall in the 50th percentile, using the CBM-Maze Comprehension, the Winter benchmark is 15 and the Spring benchmark is 16; given that, one additional correct response is expected. Therefore, if KC initially showed a baseline of 14, over 4 weeks the expected growth should be 0.50 ($[16-14]/4 = 0.50$) additional responses correct per week to achieve 16 correct responses. KC's average rate of improvement was 1.12 responses correct per week. KC's scores were all above the expected growth; therefore, she attained her goals.

The results of implementing the RCIP ($M = 20$; $SD = 1.41$) and the story mapping ($M = 21.5$; $SD = 2.12$) when compared to the baseline ($Mb = 15$; $SD = 3.60$) showed

KC's results have a downward trend line on her baseline and the intervention trend line is above the aim line. When calculating the effect size, the results for KC's SM ($ES = 0.74$; 43% PND) and the RCIP ($ES = 0.67$; 38.2% PND) were positive; leading to the rejection of the null hypotheses for Research Questions 1 and 2. KC appeared to have significant growth when the SM and RCIP were implemented. However, due to a flat line above her aim line, the effectiveness of the intervention could not be determined or it is questionable.

The null hypothesis for Research Question 3 was rejected because KC's combined score of the RCIP and the story mapping had an effect size of 0.83 or 47.4% PND, showing large interaction between the two interventions. The null hypothesis for Research Question 4 was also rejected because the difference between the SM and the RCIP is 75% when calculating their absolute effect size. Moreover, in analyzing KC's baseline average score (15) and the treatment conditions average scores (SM = 21.5, RCIP = 20) she made gains from her baseline score, however, her gains were not statistically significant. KC surpassed the expected growth goal of having 16 correct words per 3 minutes.

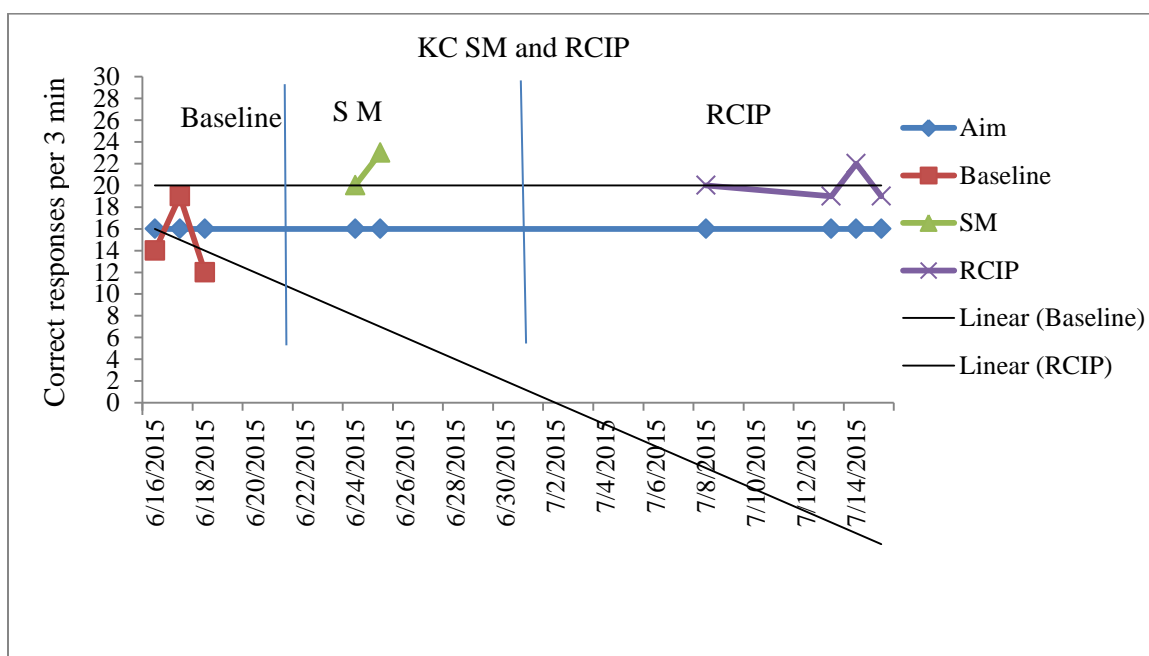


Figure 3. KC story mapping and RCIP results. From the Aimsweb data output using the norm and the suggested CBM-Reading Maze benchmark. Goal Statement: In 4 weeks, KC will achieve 16 responses correct from Grade 3 MAZE - Comprehension. The rate of improvement should be 0.50 responses correct per week. The actual average rate of improvement was 1.12 additional responses correct per week.

Table 4

KC CBM-Maze: Number of Correct Responses Per 3 Minutes

Conditions	Baseline/Interventions	Expected growth	PND	Effect size
Baseline	14	16		
Baseline	19	16		
Baseline	12	16		
SM	20	16		
SM	23	16	43%	Medium
RCIP	20	16		
RCIP	19	16		
RCIP	22	16		
RCIP	19	16	38.2%	Medium

Note. The PND is identified using the highest baseline point and counting the number of intervention data points that are above the highest baseline point (nonoverlapping). The PND score is calculated by dividing the total number of points earned by the amount of data collected, and multiplying by 100 (Bui & Fagan, 2013; Fuchs & Fuchs, n.d.). Expected growth was derived from the AIMSweb National Norm Table at the 50th percentile, for CBM-Reading Maze-Comprehension, Third Grade, using the Winter to Spring Benchmark. Effect size was derived from the Cohen's *d* and Glass *V* reported by Sullivan and Feinn (2012) and Becker (n.d.).

Results from the data analysis for AH are presented in Figure 4 and Table 5.

According to the AIMSweb National Norm, for third grade students who fall in the 50th percentile, using the CBM-Maze Comprehension, the Winter benchmark is 15 and the Spring benchmark is 16; given that, one additional correct response is expected. AH obtained a baseline of 8 initially, so in 4 weeks the expected growth should be 2.00 ($[16 - 8] / 4 = 2.00$) additional correct responses per week to achieve 16 correct responses. AH's actual average rate of improvement was 4.48 responses correct per week. AH obtained her expected growth and she made gains.

Calculating the effect effect size ($[X_t - X_c] / SD$) of the PND to determine the effectiveness of the RCIP ($M = 19.67$; $SD = 2.52$) and the story mapping ($M = 18$; $SD =$

5.66) when compared to the baseline ($Mb = 13.67$; $SD = 4.93$), AH's baseline and intervention showed positive trend lines. The results showed for SM ($ES = 0.38$; 21.3% PND) had a small effect size of impact on increasing AH reading comprehension. The RCIP ($ES = 0.61$; 38.2% PND) was consistent with her trend lines, indicating a medium effect size resulted in increasing her reading comprehension. Therefore, the null hypotheses for Research Question 1 and Research Question 2 are rejected.

The null hypotheses for Research Questions 3 was accepted. The results showed AH's combined score of the RCIP ($M = 19.67$; $SD = 2.52$) and the story mapping ($M = 18$; $SD = 5.66$) indicated a small effect size of 0.19 or 7.7% PND in the interaction between these two interventions. Thus, the null hypothesis is accepted due to no interaction between the RCIP and the story mapping instruction.

Research Question 4 involved differences between the story mapping and the RCIP, which were found to have an 84% difference; hence, the null hypothesis is rejected. In reviewing AH's average baseline score (14) and treatment interventions average scores (SM = 18 and RCIP = 20) the results showed she made gains from her baseline score, however, AH gains were not statistically significant. AH surpassed the expected growth goal of having 16 correct words per 3 minutes.

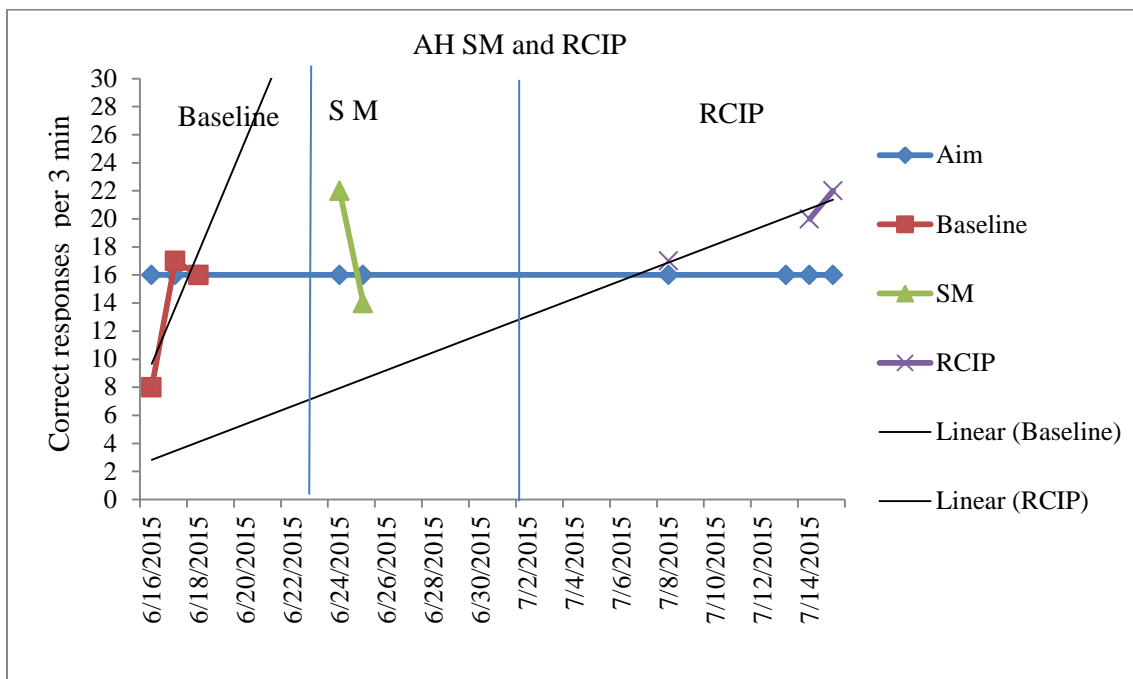


Figure 4. AH story mapping and RCIP results. From the Aimsweb data output using the norm and the suggested CBM-Reading Maze benchmark. In 4 weeks, AH will achieve 16 responses correct from Grade 3 MAZE - Comprehension. The rate of improvement should be 2.00 correct responses per week. The actual average rate of improvement was 4.48 responses correct per week.

Table 5

AH CBM-Maze: Number of Correct Responses Per 3 Minutes

Conditions	Baseline/Interventions	Expected growth	PND	Effect size
Baseline	8	16		
Baseline	17	16		
Baseline	16	16		
SM	22	16		
SM	14	16	21.3%	small
RCIP	17	16		
RCIP	missed ^a	16		
RCIP	20	16		
RCIP	22	16	38.2%	medium

Note. The PND is identified using the highest baseline point and counting the number of intervention data points that are above the highest baseline point (nonoverlapping). The PND score is calculated by dividing the total number of points earned by the amount of data collected, and multiplying by 100 (Bui & Fagan, 2013; Fuchs & Fuchs, n.d.). Expected growth was derived from the AIMSweb National Norm Table at the 50th percentile, for CBM-Reading Maze-Comprehension, Third Grade, using the Winter to Spring Benchmark. Effect size was derived from the Cohen's *d* and Glass *V* reported by Sullivan & Feinn (2012 and Becker (n.d.)).

^aData is missing because AH went home sick during this intervention.

According to the AIMSweb National Norm, for third grade students who fall in the 50th percentile, using the CBM-Maze Comprehension, the Winter benchmark is 15 and the Spring benchmark is 16; given that, one additional correct response is expected. Therefore, if JC obtained a baseline of 11 initially, in 4 weeks the expected growth should be 1.25 ($[16-11]/4 = 1.25$) responses correct per week to achieve 16 correct responses. JC's actual average rate of improvement for both interventions could not be assessed because of insufficient data, but the story mapping should have 1.25 additional responses correct per week (see Figure 5 and Table 6).

JC withdrew from the study and did not receive the RCIP intervention. Only data for story mapping was collected for JC, which applied to Research Question 2. The effect

size ($[X_t - X_c]/SD$) of the PND to determine the effectiveness of the story mapping ($M = 17$; $SD = 4.24$) and the RCIP (no data) was compared to the baseline ($M_b = 15.33$; $SD = 4.04$). JC's baseline and SM intervention showed positive trend lines, which has a small effect size of 0.20 or 14.7% PND. Therefore, the results lead to the rejection of the null hypothesis for Research Question 2 indicating the SM has an impact on increasing his reading comprehension. In reviewing JC's baseline average score (15) and treatment intervention average score (SM = 17), the results showed he made gains from his baseline score as a result of receiving the story mapping intervention and he surpassed the expected growth goal of having 16 correct words per 3 minutes for his story mapping score only. However, the gains were not statistically significant.

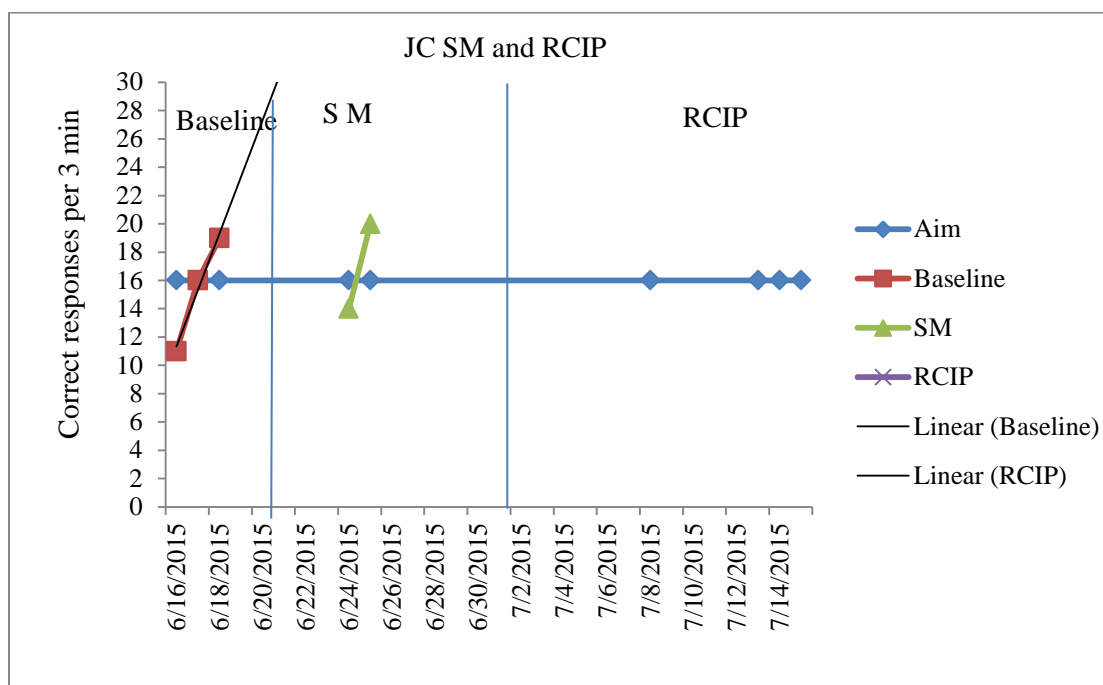


Figure 5. JC story mapping and RCIP results. From the Aimsweb data output using the norm and the suggested CBM-Reading Maze benchmark. In 4 weeks, JC will achieve 16 responses correct from Grade 3 MAZE - Comprehension. The rate of improvement should be 1.25 additional responses correct per week for story mapping only.

Table 6

JC CBM-Maze: Number of Correct Responses Per 3 Minutes

Conditions	Baseline/Interventions	Expected growth	PND	Effect size
Baseline	11	16		
Baseline	16	16		
Baseline	19	16		
SM	14	16		
SM	20	16	14.7%	small
RCIP	--- ^a	16		
RCIP	--- ^a	16		
RCIP	--- ^a	16		
RCIP	--- ^a	16		--- ^b

Note. The PND is identified using the highest baseline point and counting the number of intervention data points that are above the highest baseline point (nonoverlapping). The PND score is calculated by dividing the total number of points earned by the amount of data collected, and multiplying by 100 (Bui & Fagan, 2013; Fuchs & Fuchs, n.d.). Expected growth was derived from the AIMSweb National Norm Table at the 50th percentile, for CBM-Reading Maze-Comprehension, Third Grade, using the Winter to Spring Benchmark. Effect size was derived from the Cohen's *d* and Glass *V* reported by Sullivan & Feinn (2012) and Becker (n.d.).

^aJC withdrew from study before this data could be collected. ^bcould not be determined.

According to the AIMSweb National Norm, for third grade students who fall in the 50th percentile, using the CBM-Maze Comprehension, the Winter benchmark is 15 and the Spring benchmark is 16; given that, one additional correct response is expected. Therefore, if RB obtained a baseline of 7 initially, in 4 weeks the expected growth should be 2.25 ($[16-7]/4 = 2.25$) responses correct per week to achieve 16 correct responses. RB's actual average rate of improvement for both the SM and the RCIP could not be calculated because of insufficient data (see Figure 6 and Table 7). However, RB was expected to have a growth rate of 2.25 correct responses per week.

RB withdrew from the study and was not able to receive the RCIP intervention. Only data for story mapping was collected for RB, which applied to Research Question 2. The effect effect size ($[X_t - X_c]/SD$) of the PND to determine the effectiveness of the story mapping ($M = 12.5$; $SD = 2.12$) and the RCIP (no data) was compared to the baseline ($M_b = 10.33$; $SD = 4.16$). RB's baseline has an upward or positive trendline. His SM intervention score has a downward or negative trend line indicating a large magnitude of decrease, in which the effect size is 0.31; 21.3% PND. Therefore, the null hypothesis for Research Question 2 is rejected. In reviewing RB's baseline average score (10) and treatment intervention average score (SM = 12), the results showed his performance increased by 2 points as a result of receiving the story mapping intervention. However, RB did not achieve his expected growth goal of 16 correct responses per 3 minutes and the increase of his points were not statistically significant.

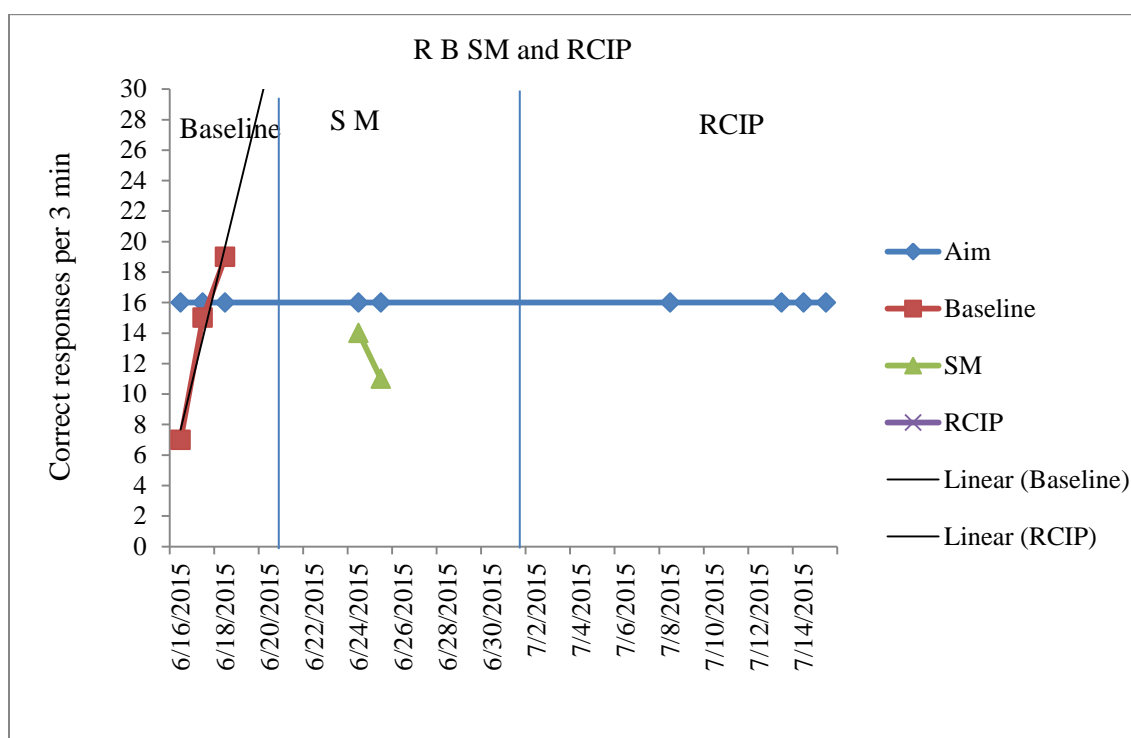


Figure 6. RB story mapping and RCIP results. From the Aimsweb data output using the norm and the suggested CBM-Reading Maze benchmark. Goal Statement: In 4. weeks, RB will achieve 16 responses correct from Grade 3 MAZE - Comprehension. The rate of improvement should be 2.25 correct responses per week.

Table 7

RB CBM-Maze: Number of Correct Responses Per 3 Minutes

Conditions	Baseline/Interventions	Expected growth	PND	Effect size
Baseline	7	16		
Baseline	15	16		
Baseline	9	16		
SM	14	16		
SM	11	16	21.3%	small
RCIP	--- ^a	16		
RCIP	--- ^a	16		
RCIP	--- ^a	16		
RCIP	--- ^a	16		--- ^b

Note. The PND is identified using the highest baseline point and counting the number of intervention data points that are above the highest baseline point (nonoverlapping). The PND score is calculated by dividing the total number of points earned by the amount of data collected, and multiplying by 100 (Bui & Fagan, 2013; Fuchs & Fuchs, n.d.). Expected growth was derived from the AIMSweb National Norm Table at the 50th percentile, for CBM-Reading Maze-Comprehension, Third Grade, using the Winter to Spring Benchmark. Effect size was derived from the Cohen's *d* and Glass *V* reported by Sullivan & Feinn (2012) and Becker (n.d.).

^aRB withdrew from study before this data could be collected. ^bCould not be determined due to missing data.

Summary

Chapter 4 contains the results of this secondary analysis of the data given to me by the school where this intervention took place. The data collected were analyzed to answer the four research questions that guided this study. The research questions pertained to whether the RCIP, which consists of vocabulary acquisition, reading fluency, writing, and adding them to the story mapping technique, had a clinically significant main effect on increasing the third grade students' reading comprehension as measured by the CBM-Reading Maze. The same hypotheses applied to story mapping in Research Question 2. The third research question pertained to the interaction effects between the

RCIP and the story mapping instruction. Lastly, the fourth research question involved, whether there were clinical differences between the story mapping and the RCIP on increasing students' reading comprehension skills.

The school that oversaw this study and the appointed remediation teacher (RT) implemented the story mapping and the RCIP interventions to the six students who participated in this study. The data showed that the remediation teacher implemented the story mapping and the RCIP with 94% to 100% accuracy, not including one of the sequences in the RCIP due to time restrictions. The results showed that the null hypotheses for Research Question 1 was rejected for CB, JL, KC, and AH indicating increase in their reading comprehension but their gains were not statistically significant. Research Question 2 was also rejected for three students in which their effect sizes were small for CB and AH, and medium for KC. JL's SM was missing a data, thus, the results could not determine the effect of this intervention to JL. The intervention trend lines were going up for CB and were moving up significantly slowly for JL. Whereas the results for KC, the trendline was going down for her baseline, and the intervention trendline showed a flat line indicating the effect of the intervention was questionable. AH's baseline and interventions show an upward trendline indicating a positive response to the intervention in which the effect size for the RCIP is medium and small for story mapping. The null hypothesis for Research Question 2 was rejected for JC; the trendline was going upward, and it has a small effect size. Whereas for RB, the null hypothesis for Research Question 2 was accepted, which has a small magnitude of decrease when implementing the SM.

For Research Question 3, null hypotheses were accepted for CB and AH indicating no interaction effects between their story mapping and the RCIP. On the other hand, the null hypothesis for KC was rejected indicating some interaction effects between the story mapping and the RCIP. Missing data for JL on the story mapping, hence, the interaction effects could not be determined. In answering Research Question 4, the null hypothesis for JL and CB are accepted because no difference was shown between the SM and the RCIP; whereas, for KC and AH, the null hypothesis for this question are rejected. The SM intervention for JC and RB shows different results also.

Overall, the results showed the story mapping and the RCIP interventions were found to have different levels of effectiveness for each participant as measured by the CBM-Reading Maze, using the PND that ranged from 0–100%. The goal of 70-90% PND is considered fairly effective intervention. In this study, the PND scores ranged from 14.7% to 43%, indicating small to medium effect size in determining the impact of the RCIP and the story mapping to increasing the third grade students. Therefore, these scores did not show that these interventions were effective. However, CB, KC, and AH story mapping and the RCIP, they obtained relative gains when their scores were compared to the baseline. However, the results were not statistically significant. Although these interventions have different results, AH, KC, and CB surpassed the expected growth goal of having 16 correct words per 3 minutes for both SM and the RCIP. JL met his goal for the RCIP but not the SM. JC achieved the expected growth of having 16 correct words per 3 minutes when the SM was implemented but RB did not. Therefore, the outcome of this study showed the RCIP is a potential intervention to help students

who struggle in reading. I believe the RCIP should be explored in additional research studies to determine the maximum magnitude of the effectiveness of this intervention.

Chapter 5 contains a discussion of the key findings of this study. A reiteration of the purpose and nature of the study is presented. I also discuss the interpretation of the findings, limitations of the study, future recommendations, implications of the study, and conclusions.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The NCLD found that reading comprehension for children with reading problems is a concern. Reading problems have been shown to be an issue in the United States (Arcia, 2006; Persampieri et al., 2006). Arcia (2006) and Persampieri et al. (2006) found that many students who had reading problems dropped out of school and were academic failures. Rampey et al. (2009) reported that approximately one third of U.S. students read below their grade basic level. Kim et al. (2012) found that despite advances in developing effective intervention for reading comprehension, problems in this area persist, and an effective intervention for reading comprehension is still needed (Gill, 2008; Rapp et al., 2007; Sencibaugh, 2007). Researchers have shown that helping students understand what they read requires effective interventions with multiple strategies (Karasakaloglu, 2012; Rapp et al., 2007; Van Norman & Wood, 2008). Hence, an instruction with multiple strategies is still needed.

In this study, addressing reading comprehension with multiple strategies such as the story mapping and the RCIP were proposed. This study was a quantitative secondary analysis in which the school chosen to implement the proposed interventions (RCIP and SM). After the school implemented this study, the data were given to me for analysis. The data for the secondary analysis examined the main effects of the RCIP and story mapping instruction designed to increase third grade students' reading comprehension skills. The study was also used to determine the interaction effects between the RCIP and the story mapping when combined as well as to determine if there were outcome

differences when implementing these interventions to increase students' reading comprehension skills. A single-case, MPD, quasi-experimental design across subjects was used. The MPD is a variation of the MBD in which data are collected intermittently (Cooper et al., 2007; D. Horner & Baer, 1978; Li, 2007; Lo et al., 2011). The data obtained were correct responses per 3 minutes using the CBM-Reading Maze, during baseline and intervention conditions, to measure the participants' reading comprehension skills. Visual analysis was used to analyze the data. When visually analyzing the data, the trend line, data points, and directionality (upward or downward trend) show if the story mapping and the RCIP affected the third grade students' reading comprehension. To determine the effectiveness of these interventions, the PND, along with the Cohen's *d* effect size, was used (Fein & Stein, 2012).

Four research questions were formulated to guide this study. The first research question addressed the main effect of implementing the RCIP as an instructional strategy on students' reading comprehension as measured by the CBM Reading Maze. Four students (CB, JL, KC, and AH) received this intervention. The null hypothesis for Research Question 1 was rejected, indicating that the RCIP had an impact in increasing CB's, JL's, KC's, and AH's reading comprehension that ranged from small to medium effect sizes. However, the increase was not statistically significant. The results for CB showed a small magnitude decrease when compared to the baseline score after implementing the RCIP. JL's RCIP trend line showed a small decrease when compared to the baseline. As for KC and AH, when the RCIP was implemented, both of their trendlines showed positive results, indicating a medium effect size. However, KC had a

flat trend line, which indicates the intervention was questionable. Therefore, the null hypothesis for Research Question 1 on KC and AH were rejected. The findings on Research Question 1 indicated that multiple components of reading comprehension intervention had a smaller to medium effect when helping students' increase their reading comprehension.

When implementing the RCIP to participants, some impact occurred with increasing their reading comprehension because three students surpassed their expected goal of achieving 16 correct responses per three minutes, and one attained this expected goal. Therefore, this study had a small to medium effect in confirming that a multiple component intervention had some impact to increasing reading comprehension skills, but the impact was not statistically significant. The idea of having multiple intervention strategies instead of one still a phenomena that needed to be addressed as shown in the past research. This is because there is not enough intervention that could be used effectively when helping students improve their reading comprehension. Furthermore, students would need to continue exploring their background knowledge so that they could increase connecting their understanding based on how they organize their thoughts. (Antoniou & Souvignier, 2007; Begeny & Silber, 2006; Block et al., 2009; Bui & Fagan, 2013; Cantrell et al., 2010; Gill, 2008; Lu & Doshier, 2007; Mahdavi & Tensfeldt, 2013; Rapp et al., 2007).

The second research question was used to examine the main effects of implementing the story mapping on students' reading comprehension as measured by the CBM Reading Maze. All six students received this intervention. Research Question 2 null

hypotheses were rejected for four students. The effect sizes were small for CB, AH, and JC, showing an upward trendline indicating positive results for helping them increase their reading comprehension skills. A medium effect size for KC was found, indicating an increase in her reading comprehension, but not statistically significant. However, because KC's trendline was flat, the effectiveness of implementing the story mapping could not be determined. The results of JL's story mapping could not be determined due to missing data. As for RB, the null hypothesis was accepted, showing a small magnitude of decrease when implementing the story mapping instruction, which indicates no impact in his reading comprehension skills. The finding in Research Question 2 is consistent with the previous research that the story mapping instruction can increase a person's reading comprehension skills. Grunke et al. (2013) found that story mapping increases students' reading comprehension skills. Johnston et al. (2008) explained that when using the story mapping, students are engaged, requiring them to apply their mental representation and cognition in order for them to activate their prior knowledge. Prior knowledge helps students focus when connecting and integrating the individual's background knowledge when learning new information. Therefore, Research Question 2 confirmed what the past research indicated: Story mapping could increase a student's reading comprehension skills.

The third research question was used to examine the interaction effect between the RCIP and story mapping. Four participants (CB, JL, AH, and KC) were able to complete this portion of the study. The results showed zero to medium interaction effects between the RCIP and the story mapping technique when they were combined. The

magnitude of interactions between these interventions showed no interaction for CB and AH. JL had missing data; hence, the results could not be determined. KC showed a medium effect size, indicating an interaction effect between the RCIP and the story mapping instruction. Therefore, the null hypothesis was accepted for CB and AH, but could not be determined for JL due to missing data. However, the results showed a medium interaction effect between the SM and the RCIP for KC, which rejected the null hypothesis. The findings in Research Question 3 confirmed and disconfirmed the past research that the RCIP, which consists of vocabulary acquisition, reading fluency, writing, and the story mapping instructions, are better delivered individually, than when they are combined all together (McCurdy et al., 2008; Staden, 2013; Stagliano & Boon, 2009). This is because the null hypotheses for two students were accepted, indicating no interactions between the RCIP and the story mapping, and the other one was rejected, showing a medium effect size of interaction but not statistically significant. In addition, the findings of Research Question 3 have some correlations with how students learn and interact with their reading. Snape and Fox-Turnbull (2011) emphasized the importance of students' interaction when engaged in reading. The students become active learners. The effect of combining the story mapping and the RCIP played a role in helping students engaged in their learning process; teaching them the different skills they can use and be able to interact and engaged with their reading process (Cantrell et al., 2010).

The last research question pertained to whether there were differences in students' reading comprehension skills when the RCIP was implemented compared to the story mapping technique alone. Data were collected from four students for this research

question; CB showed no differences between the RCIP and the story mapping instruction; therefore, the null hypothesis was accepted. JL had missing data, therefore, results could not be determined. Among the two other students (KC and AH), there were some magnitude of differences between implementing the RCIP compared to the story mapping instruction alone; therefore, the null hypothesis for Research Question 4 was rejected. The findings for Research Question 4 confirmed and disconfirmed that multiple reading components such as the RCIP did show some differences for two students, but not for one student when compared to the story mapping. The findings seemed to relate and connect with the past research because in both interventions, students learned to construct their knowledge. The results of this research showed students were able to apply what they already know and how to help them complete the task in this study. They seemed to learn the importance of coherence in helping them understand what they read when they apply the skills. As shown in the past and this study, story mapping is still a good instruction to help students understand what they read (Espin et al., 2007; Rapp et al., 2007). As for the RCIP, the students made relative gains even though they were not statistically significant. Hence, if choosing the RCIP or the SM, I would still integrate them to teach students increase their reading comprehension. This is because according to constructivism, the story mapping and the RCIP both have different stages or phases of learning, allowing students to think critically, especially when teachers provide them guided reading. This gives students an opportunity to use the repetition of learned skills and to work with each other. Therefore helping them develop that reading foundation needed to help them understand what they read.

Interpretation of the Findings

This study was a secondary analysis because the school implemented the story mapping and the RCIP and the data were delivered to me for analysis, which provided interesting but mixed results. The secondary analysis was also introduced earlier in Chapter 1. Hence, the results showed that the RCIP and the story mapping did not have a clinically significant main effect on increasing students' reading comprehension skills. However, the results of this study showed students made relative gains in comprehension skills after the implementation of the story mapping alone and the RCIP. Additionally, although the main effects, the interaction effects, and the differences between the story mapping and the RCIP were not clinically significant, CB, JL, KC, and AH made gains when compared to their baseline scores. JC and RB made some gains when the SM was implemented. However, overall, the increase was not statistically significant. The overall findings produced a mixed result, confirming and disconfirming the past research. For example, story mapping in the past had helped to increase students reading comprehension. This is consistent with this study. The RCIP has mixed results, indicating it works for some students, but not for others. The findings of this study are connected with constructivism as explained earlier and more elaborated on in the rest of this section.

As previous research showed (Bui & Fagan, 2013; Karasakaloglu, 2012; Phillips, 2008; Rapp et al., 2007) multiple strategies are needed to better help struggling readers increase their reading comprehension skills. In this study, multiple strategies were used to help participants increase their reading comprehension skills. Implementing the RCIP did not show a positive result for some students, but it did for others. Maybe this is because

students employed various reading strategies, for example, using a dictionary. Prichard and Matsumoto (2011) reported that learners who used the dictionary tended to increase their reading comprehension. In addition, for this study, the implementation of the SM and the RCIP did not work for some students because they may have lacked the motivation to learn. The National College Transition Network (Di Tomasso, n.d.) indicated that students who lack motivation or fail to apply their learned reading strategies tend to have difficulties relating to or understanding what they read. Furthermore, when the RT applied the tasks that are similar to reciprocal teaching, which focuses on questioning, clarifying, predicting, and summarizing (Pilonieta & Medina, 2009; Williams, 2010), the results of my study suggested the same. That is, having multiple strategies could increase students' reading comprehension skills as evidenced by their relative gains. The results of this study showed that through active participation and engagement, participants at a primary grade level could make gains. All students made relative gains that ranged from 1.0 to 6.5 points from their baseline scores after implementing the story mapping technique whereas in the RCIP, the four students who completed this study increased their baseline scores 3 to 6 points.

The results of this study could not confirm whether active engagement between the teacher and the students helped increase their reading comprehension skills. Brenna (2013) emphasized that people learn best by actively constructing an understanding of what they read. As Snape and Fox-Turnbull (2011) suggested, student interaction while reading plays a significant role in helping them become active learners. Participants in this study showed changes in their reading comprehension skills varying from no effect

to a medium effect size indicating no increase to some increase in helping students with their reading comprehension when the RCIP and the SM were implemented. Through engagement, readers usually learn to reflect what they know, and they verbalize what they read for better understanding of the text (Brenna, 2013; Snape & Fox-Turnbull, 2011). However, in my study mixed results were found, which could have occurred for various reasons. As stated earlier, students may have lacked motivation, lacked knowledge on how to use the dictionary, or failed to apply the learned reading strategies. Maybe the students found the tasks too difficult to follow, which might have resulted from being less engaged and therefore not understanding the tasks presented to them (Tomasso, n.d.), such as in the case for RB, who had some decrease when the SM was implemented to him. On the other hand, KC and AH demonstrated more gains in this study. As the RT indicated during this study, KC and AH seemed to have motivation, were engaged, were actively involved in the learning process, and appeared to be applying what they learned from the multiple strategies involved when implementing the SM and the RCIP (Personal Communication, July 15, 2015).

Moreover, in analyzing the trend lines between the baselines for the SM and the RCIP interventions, the results indicated an upward trend line for JC (SM only) and AH, a flat trend line for KC, and downward trend lines for RB (SM only), CB, and JL, indicating and confirming the mixed results of this study. As previously explained, the results of implementing the SM and the RCIP designed to increase third grade students' reading comprehension skills vary. Therefore, studies to determine the maximum level of effectiveness of these interventions are still needed.

The story mapping and the RCIP were found to have small to medium effect size on increasing students' reading comprehension, and one was questionable. Two students withdrew and they did not receive the RCIP intervention. Therefore, because the RCIP has not been studied in the past, further research is needed to determine the maximum potential of this intervention. In addition, I could not confirm RCIP effectiveness based on the required PND criteria of 70% and above. This may be because the intervention was short and not enough time was given to students. As seen in previous research, a sufficient amount of time seems to be needed in order for interventions to be fully effective. Joseph (2008) reported that a phonics program to help improve the fluency skills of children required an intensive 16-week instructional period. Furthermore, in studies conducted from 2006 to 2011, the Scholastic Reading 180 took approximately 1 to 5 years before it showed significant increases in reading achievement. Therefore, the RCIP could be an intervention that needs more time, due to its intensity, before significant gains can be achieved.

Story mapping has been shown to be an effective strategy in the past, yielded varying results for different students. Although this study showed the RCIP and the SM were ineffective for some students and not others, all students made gains except one. CB, KC, and AH surpassed their expected growth goal of having 16 correct words per 3 minutes for SM and the RCIP; JC surpassed the expected growth goal for SM; JL met his expected goal for the RCIP, but not for the SM; and RB increased his baseline score by two points after implementing the SM intervention.

The appropriateness of using the SCED in this study was consistent with what Wong (2010) suggested. He stated that due to repeated measures and having a smaller sample when implementing new interventions, the internal validity usually produces a better outcome and the external validity suffers. Therefore, based on the results of this study the internal validity showed to be the strength when applying the SCED. Horner (2012) also confirmed that when conducting an experimental study using the SCED, the internal validity seemed to be advancing practices in education.

Limitations of the Study

There were some significant limitations in this study. First, this study depended on a secondary analysis; the school chosen oversaw the implementation of the RCIP and the story mapping. I had no control over exactly who would participate or whether participants withdrew from this study. This limitation was highlighted when two participants dropped out and were unable to receive the RCIP interventions. The number of students participating in the beginning of the study was the very minimum, and I had no control over the attrition that occurred. However, researchers have shown that when using a single case experimental design three to eight participants were sufficient to test hypotheses (Gills & Butler, 2007). Therefore, having four participants complete the study was still within the minimum number of participants required.

The time that the remediation teacher (RT) spent implementing the RCIP and story mapping was limited. The proposed interventions were designed to take place for 6 weeks, 30 minutes a day, 5 days per week. This study was conducted during the summer program, which lasted only 5 weeks and had only 4 days of instruction each week. The

total time spent to implement the RCIP and the story mapping was 2.5 hours shorter than the proposed 900 minutes. The time spent on this intervention seemed too short, and the RT had to continue the lesson the following day, which decreased the time allowed for discussion and engagement with students.

The final limitation of this study pertains to generalizability, validity, and reliability of the study. I found that collecting multiple measures was difficult to accomplish. In addition, because of time limitations, the continuation of the lesson or the assessments were conducted close to each other; therefore, the scores may have impacted the subsequent assessment of each intervention (Wong, 2010). In addition, the sample size for this study was only the acceptable minimum, thereby limiting the generalizability of the results. In addition, the external validity may be questionable due to the small sample size (Stagliano & Boon, 2009).

Among the significant findings of this study was that a dictionary should be used at all times when helping students increase their comprehension skills. In addition, because students did not know how to use the dictionary, spelling errors occurred, thereby decreasing their ability to understand the meanings of words. They had difficulty understanding words as reported by the RT, and this difficulty was reflected in the incomplete worksheets. The lack of knowledge about how to use a dictionary also affected the participants' writing abilities, and several of them were hesitant to write their responses on the worksheet. However, with support and encouragement from the RT, the students gave their best efforts to complete the writing tasks. As a researcher, I strongly recommend the use of dictionary at all times when teaching students to read. Using the

dictionary should be part of students' learning activities when reading. As Prichard and Matsumoto (2012) found in their study of the role of lexical coverage in increasing bilingual students' reading comprehension skills, the use of a dictionary seemed to have a significant influence in increasing their skills. Therefore, educators must teach students how to use the dictionary as a routine activity during reading.

Recommendations

The reading comprehension intervention package (RCIP) has not been studied previously; therefore, I recommend further efforts be made to determine the effectiveness of using the RCIP to increase students' reading comprehension. The RCIP employs multiple strategies and various instructional approaches that could potentially help students increase their reading comprehension more than the students in this study did. Although all the participants in this study showed relative gains, the effectiveness of the intervention varied among participants. Therefore, follow up on my recommendations is needed to examine further the RCIP's effectiveness in increasing student reading comprehension skills.

The results of this study indicate a need to implement the RCIP with certain subgroups such as students who speak a different language, have language deficits, or have learning disabilities, to examine the effectiveness of the RCIP and allow the generalization of the results not only to third grade students but also to other student populations. Another recommendation for future studies would be to replicate the RCIP implementation using both fiction and nonfiction story books to determine if there are differences or if there are statistically significant correlations between them.

In addition, rather than conducting a secondary analysis, I recommend future studies involve intervention groups versus control groups to determine how significant the main effects of the RCIP are on increasing students' reading comprehension skills. Implementing the RCIP with a larger number of third-grade students may allow the generalization of the benefits of this intervention for all third-grade students. Furthermore, very few studies on increasing the reading comprehension skills of younger children have been conducted (Gregory & Cahill, 2010; Mahdavi & Tensfeldt, 2013; Proctor et al., 2007); implementing the RCIP with second-grade students might help determine the applicability of these teaching methods to a younger population. The need to develop reading comprehension instruction with multiple strategies continues to exist.

Implications of Social Change

The findings of this study revealed a different outcome for each participant when the story mapping and the RCIP were implemented. The participants made relative gains in which some of them achieved additional correct responses above the expected growth as measured by the CBM-Reading Maze. Although gains were made and the results vary over a range from none to a medium effect size. Therefore, the implications for social change range from limited to possible potential to help students increase their reading comprehension.

In general, the social change may be limited because the results of this study did not reveal a significant impact on increasing students' reading comprehension skills as I predicted. However, on an individual basis, participants made some gains. Based on the small gains that participants achieved, there is a chance the RCIP could provide students

opportunities to read more often. The RCIP process could provide students with ways to organize their thoughts and consequently understand the reading text materials. The RCIP could still be helpful to teachers and family in providing students with a foundational tool to help them become more productive members of society. The RCIP consists of multimodal comprehension strategies that help deepen students' understanding of texts they read (Brenna, 2013). Encouraging findings in effective reading comprehension instruction have been shown only for younger children; therefore, the results of this study could be an additional contribution to the current literature (Mahdavi & Tensfeldt, 2013).

Conclusion

The purpose of this study was to identify quantitatively the main effects of story mapping and the RCIP on increasing students' reading comprehension by conducting a secondary analysis. In addition, this study was used to examine interaction effects and determine if there were differences between the story mapping and the RCIP in increasing the students' reading comprehension skills. Single case quasi-experimental design across subjects and multiple probe design were utilized to collect data. The data collected were students' responses correct per 3 minutes as measured by the CBM-Reading Maze. The results of this study were mixed. The results showed no main effects or no differences for two participants, but the opposite results for the other two participants who completed the entire study. As for implementing the story mapping, three out of six students had main effects on increasing their reading comprehension. When determining if there are interaction effects of implementing the instructional strategies of RCIP and the SM, of the four students who completed the RCIP, only one

student showed a large interaction effect; the rest were found to have no interaction effects.

I entered this study with the belief that implementing a reading comprehension intervention package would help students increase their reading abilities. I felt that the RCIP would be the best intervention to help students increase their reading comprehension skills. The results of this study show the effect size ranged from none to large when implementing the SM and RCIP. The results show some inconsistency with previous research in which it was found that multiple interventions are more influential than just one. Instead, in this study I found that although multiple interventions may be helpful, if time is limited it seems the interventions would not be beneficial. Researchers have shown that multiple interventions with multiple instructional approaches seem powerful in increasing students' comprehension skills (Begeny & Silber, 2006; Bui & Fagan, 2013; Mahdavi & Tensfeldt, 2013; Rapp et al., 2007); hence, the small gains that the participants achieved in this study are worth exploring because the RCIP was based on multiple strategies and multiple instructional approaches. Therefore, I strongly recommend further investigation of the effects of the RCIP on increasing students' reading comprehension skills in different grade levels or different subgroups, group studies that focus on diversity (populations that are bilingual, Caucasian, African American, or other ethnicity), as well as implementing the RCIP with those who may have learning disabilities.

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Appendix A: FCRR Worksheets

Comprehension

Narrative Text Structure Story Mapping

C.009 Objective

The student will identify story elements.

Materials

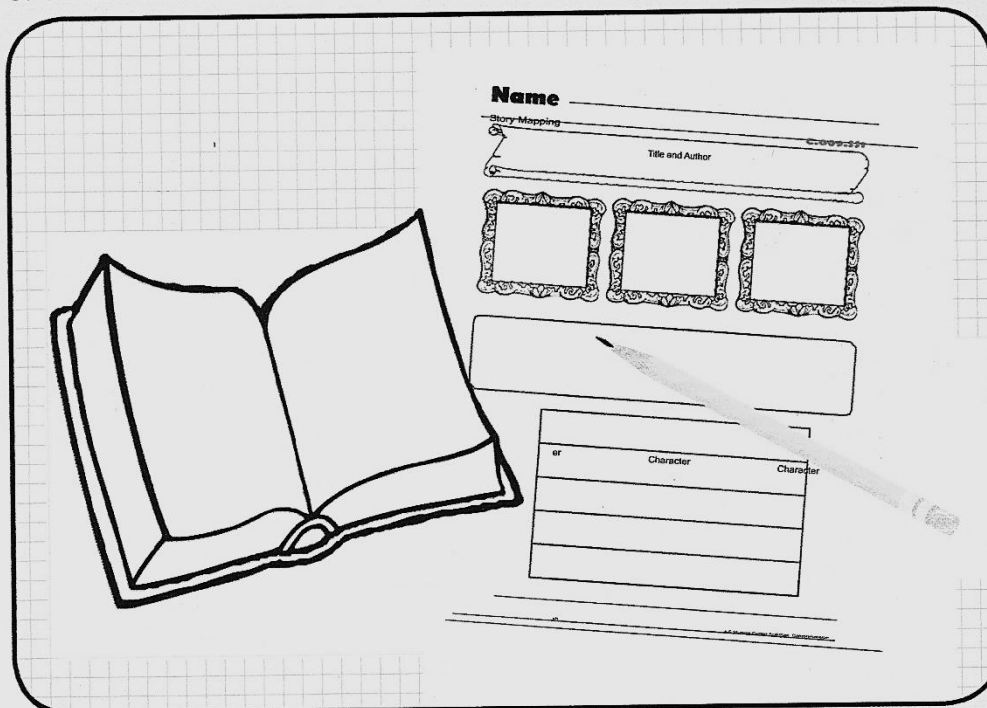
Narrative text

- ▶ Choose text within students' instructional-independent reading level range.
- ▶ Student sheet (Activity Master C.009.SS1) Pencil

Activity

Students record information related to story elements on a graphic organizer.

1. Provide the student with a copy of the text and a student sheet.
2. The student reads or reviews the text.
3. Writes the title and author of the story on the student sheet.
4. Reads the prompts and records the answers until the sheet is complete.
5. Teacher evaluation



Extensions and Adaptations

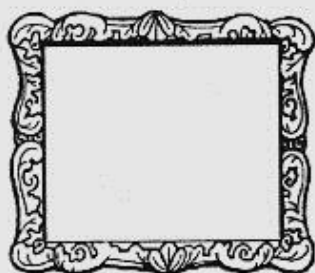
- ▶ Use different colored highlighters to mark story elements on a copy of the text.
- ▶ Use other story maps (Activity Masters C.009.SS2 and C.009.SS3).
- ▶ Write other questions about the story and exchange with a partner who answers (Activity Master C.009.SS4).

Name _____

Story Mapping

C.009.SS1

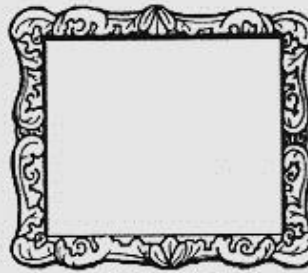
Title and Author



Character



Character



Character

Setting

Problem: _____

Event

Event

Event

Event

Solution: _____

Name _____

C.009.SS2

Story Mapping

Title: _____ Author: _____

Setting
Where:
When:

Characters

Problem

Event

Event

Event

Event

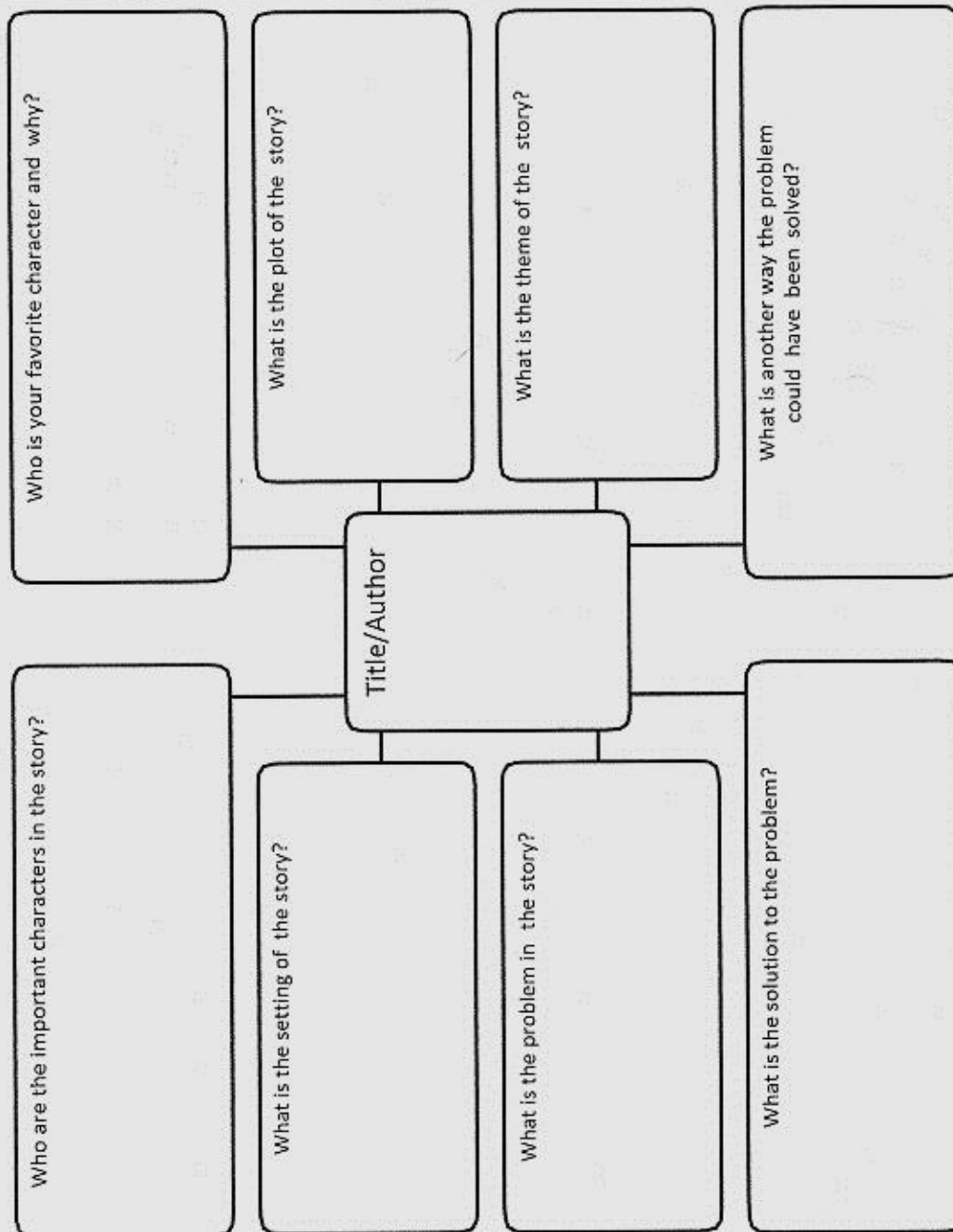
Event

Solution

Name _____

Story Mapping

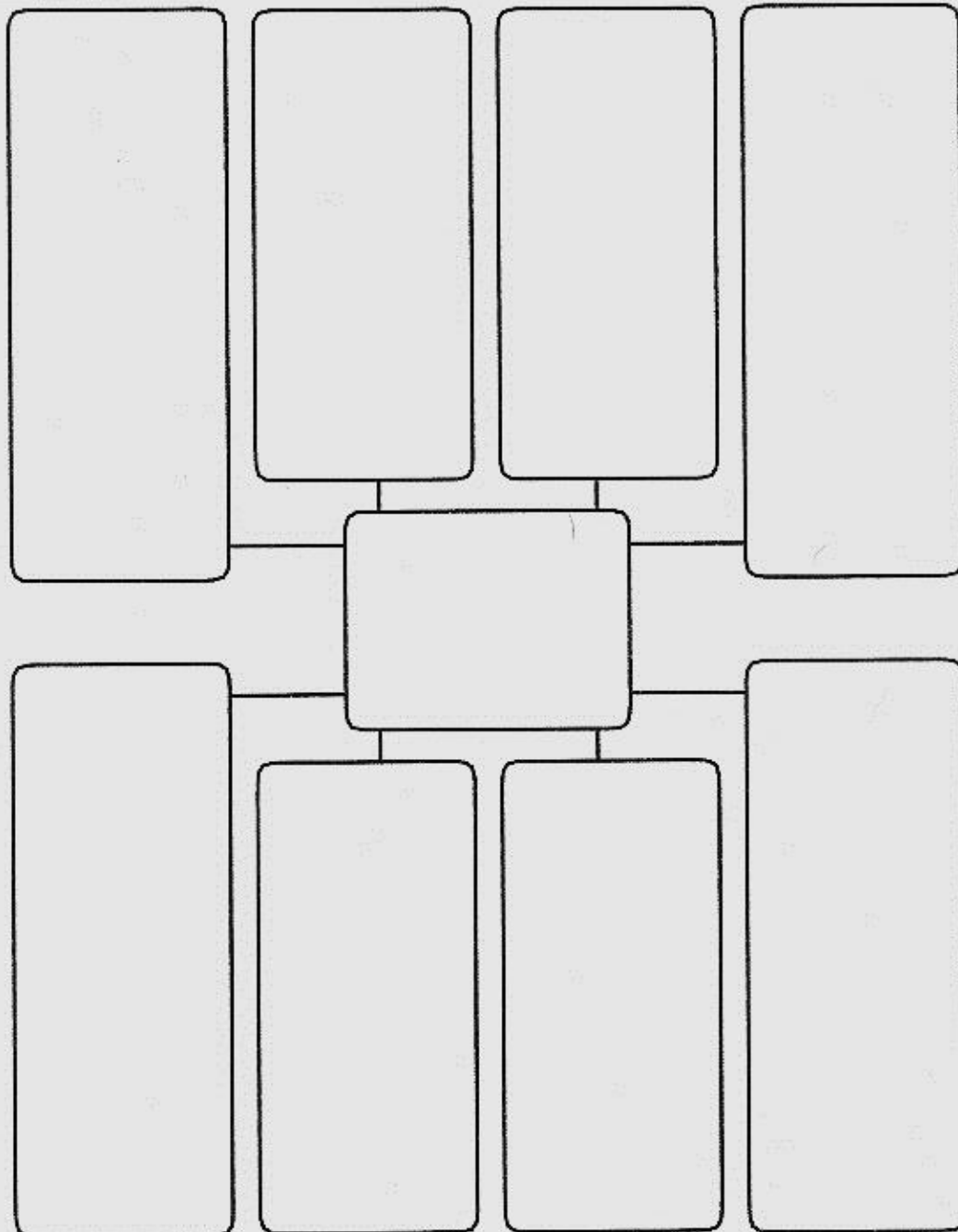
C.009.5S3



Name _____

C.009.SS4

Story Mapping



Vocabulary

Word Meaning
Word Wrap

V.017

Objective

The student will produce the meaning of words.

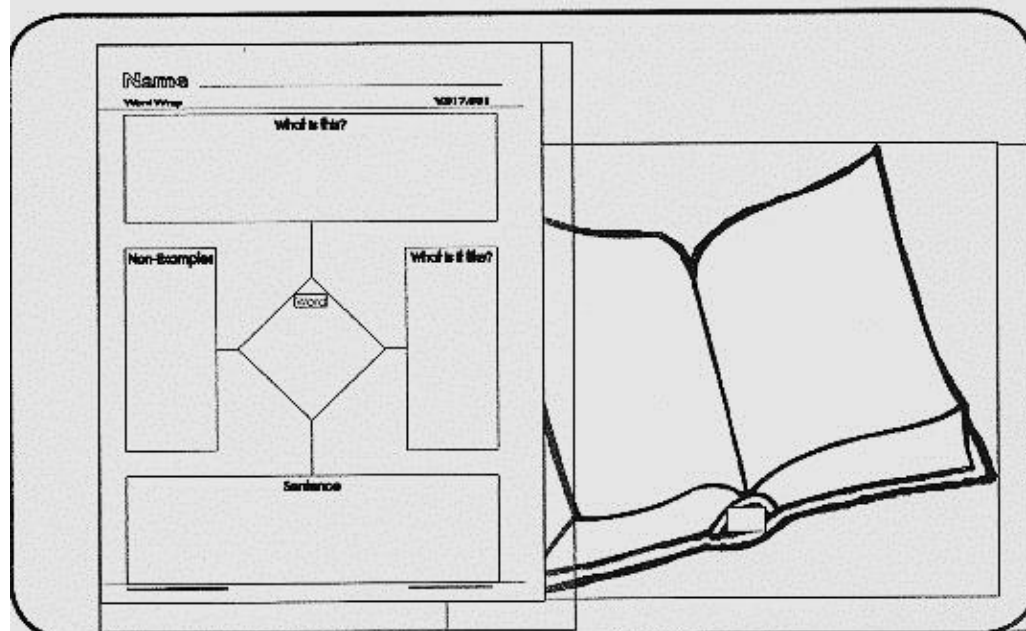
Materials

- > Science or Social Studies text
- > *Select one or more target words from text or curriculum.*
- > Index cards or chart paper
- > *Write the target words on the index cards.*
- > Word Wrap student sheet (Activity Master V.017.SS1) Dictionary
- > Pencil

Activity

Students describe a target word using a graphic organizer.

1. Place text, dictionary, and target words at the center. Provide the student with a student sheet.
2. Student writes a target word in the middle of the student sheet.
3. Fills out a graphic organizer by answering the questions in each box. Uses text or dictionary, if necessary.
4. Teacher evaluation



Extensions and Adaptations

- > Use a "four square" word map (Activity Master V.017.SS2).

Name _____

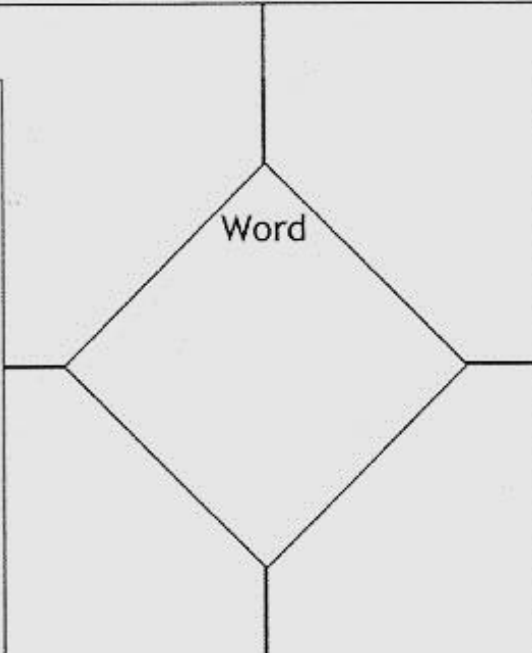
Word Wrap

V.017.SS1

What is this?

Non-Examples

What is it like?



Sentence

Name _____**V.017.SS2****Word Wrap**

What are some examples?

What is it like?

Word

What is it?

Writing a Persuasive Letter


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Persuasion Chart

Topic: I want to persuade Mom and Dad to go camping in Colorado.
(audience) (purpose)

Brainstorm reasons here.

- lots of good fishing
- mountains for hiking and biking
- national parks
- pretty scenery
- good campgrounds
- can drive there from here



Organize your reasons here.

Least important

- pretty scenery
- national parks
- can drive there from here
- good campgrounds
- lots of fishing

Most important

- mountains for hiking and biking

Writing a Persuasive Letter

© Scott Foresman 3

Persuasion Chart

Topic: I want to persuade _____ to _____.
(audience) (purpose)

Brainstorm reasons here.

Organize your reasons here.
Least important

Most important

Fluency



Connected Text

F.025

Read and Read Again

Objective

The student will gain speed and accuracy in reading connected text.

Materials

- ▶ Set of books or connected text
Choose book passages or other text within students' instructional-independent reading level range. Make two copies and laminate. Indicate the number of words in text.
- ▶ Reading record (Activity Master F.025.SS1)
- ▶ Words correct per minute graph (Activity Master F.025.SS2)
This graph can be used to record 60-90 words correct per minute. Other graphs to record 30-60 and 90-120 words correct per minute can be found at F.008.SS1 and F.025.SS3.
- ▶ Pencils
- ▶ Timer (e.g., digital) Vis-à-Vis® markers

Activity

Students time repeated readings and graph words correct per minute.

1. Provide each student with a copy of the text, reading record, and words correct per minute graph. Place the timer at the center.
2. Working in pairs, student one sets the timer for one minute and orally reads the text. Student two follows along, using a Vis-à-Vis® marker to mark words read incorrectly.
3. Continue reading until timer goes off. Student one completes the reading record and words correct per minute graph with the assistance of student two.
4. Student one rereads the text two more times, attempting to increase speed and accuracy.
5. Reverse roles and continue the activity.
6. Peer evaluation

The illustration shows two students sitting at a table reading a book. A large clock is positioned above them, and a 'Words For Minute' graph is to the right. The graph has a vertical axis labeled 'Words For Minute' with a scale from 0 to 90 in increments of 10. The horizontal axis is labeled 'Time' with markers for 1:00, 2:00, 3:00, 4:00, and 5:00. The reading record form on the left includes fields for 'Name', 'Title', 'Page(s)', and three sections for '1st Reading', '2nd Reading', and '3rd Reading'. Each section has lines for 'Words read', 'Words read incorrectly', and 'Words read correctly per minute'.

Extensions and Adaptations

- ▶ Use copies of text and mark difficult words for later explanation.
- ▶ Use graph with more fluent readers (Activity Master F.025.SS3).

Name _____**F.025.SS1****Read and Read Again**

Title: _____

Date: _____ Pages Read: _____

1st Reading

Number of words read: _____

Subtract number of errors: _____

Number of words correct per minute: _____

2nd Reading

Number of words read: _____

Subtract number of errors: _____

Number of words correct per minute: _____

3rd Reading

Number of words read: _____

Subtract number of errors: _____

Number of words correct per minute: _____

Name _____**F.025.SS3**

Read and Read Again

Words Correct Per Minute

120					
119					
118					
117					
116					
115					
114					
113					
112					
111					
110					
109					
108					
107					
106					
105					
104					
103					
102					
101					
100					
99					
98					
97					
96					
95					
94					
93					
92					
91	1 st try	2 nd try	3 rd try	4 th try	5 th try

Name _____

Read and Read Again

F.025.SS2

Words Correct Per Minute

90					
89					
88					
87					
86					
85					
84					
83					
82					
81					
80					
79					
78					
77					
76					
75					
74					
73					
72					
71					
70					
69					
68					
67					
66					
65					
64					
63					
62					
61					
60					
	1 st try	2 nd try	3 rd try	4 th try	5 th try

 **C.027**


Comprehension

Monitoring for Understanding

Read and Ask


 **Objective**

▷ The student will answer questions to comprehend text.

 **Materials**

Narrative or expository text

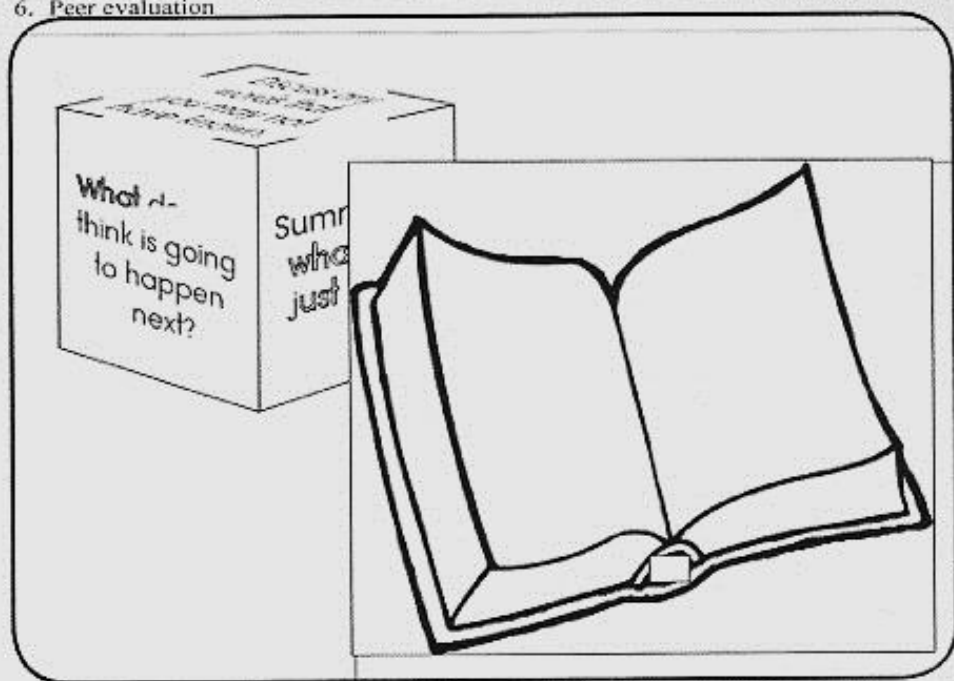
Choose text within students' instructional-independent reading level range.


 Question cube (Activity Master C.027.AM1)

Activity

Students discuss text by using a question cube.

1. Place text and question cube at the center. Provide each student with a student sheet.
2. Taking turns, the students read entire text aloud.
3. Roll the question cube, read the question, and answer it based on the text.
4. Discuss answer with partner.
5. Continue the activity until all the questions are answered at least once.
6. Peer evaluation



 **Extensions and Adaptations**

- ▷ Record answers (Activity Master C.027.SS).
- ▷ Make other cubes with different questions (Activity Master C.027.AM2).

Comprehension

Read and Ask

C.027.AM1

	Summarize what you just read.	
How does what you just read relate to your own life?	Discuss any words that you may not have known.	What do you think is going to happen next?
	Based on what you read, what are you curious or interested in knowing more about?	
glue	Did you understand what you just read? Why or why not?	glue
	glue	

Name _____

C.027.SS

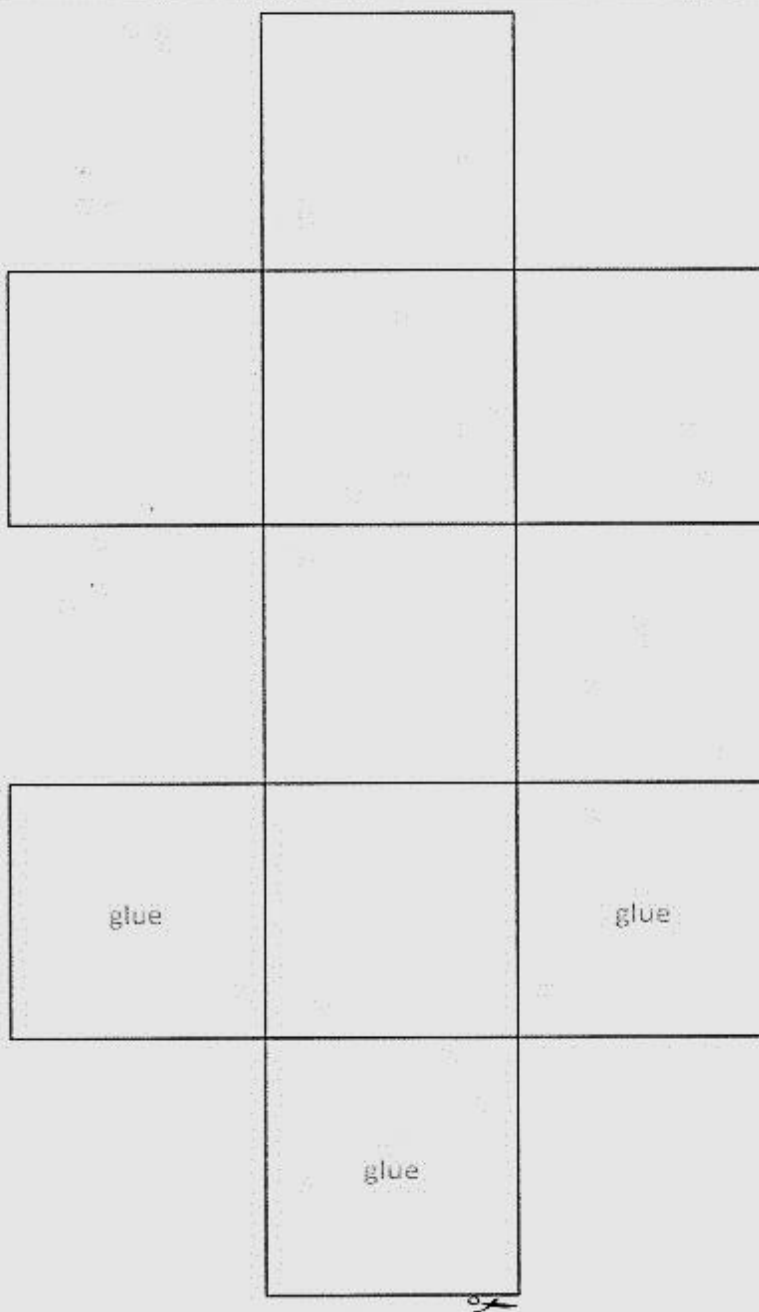
Read and Ask

<p>What do you think is going to happen next?</p>	
<p>Did you understand what you just read? Why or why not?</p>	
<p>Discuss any words that you may not have known.</p>	
<p>How does what you just read relate to your own life?</p>	
<p>Based on what you read, what are you curious or interested in knowing more about?</p>	
<p>Summarize what you just read.</p>	

Comprehension

Read and Ask

C.027.AM2



Comprehension

Narrative Text Structure

C.009

Retell-A-Story

Objective

▶ The student will retell a story.

Materials

- ▶ Narrative text
- ▶ *Choose text within students' instructional-independent reading level range.*
- ▶ Student sheet (Activity Master C.009.SS) Pencil

Activity

Students retell story using a graphic organizer.

1. Place text at the center. Provide the student with a student sheet.
2. Student reads story.
3. Reads a question on the student sheet, answers, and records using complete sentences.
4. Continues until all questions are answered.
5. Teacher evaluation

Name _____

Retell-A-Story

Retell A Story

Title _____

Author _____

Extensions and Adaptations

- ▶ Write a summary of the story in 20 words or less on the back of the sheet.

Name _____

C.009.SS
Retell-A-Story

Retell-A-Story

Title: _____

Author: _____

Story Sequence	Student's Retelling
<p style="text-align: center;">Beginning</p> <p>Who are the main characters?</p> <p>Where and when does the story take place?</p> <p>What happens in the beginning?</p>	
<p style="text-align: center;">Middle</p> <p>What happens in the middle?</p> <p>What is the problem?</p> <p>What does the main character do?</p>	
<p style="text-align: center;">End</p> <p>How is the problem solved?</p> <p>How does the story end?</p>	

Appendix B: Task Analysis

STORY MAPPING INSTRUCTION	Yes	No
RT and Students will read the first book, "The Parts of the Tree."		
RT will provide students with a copy of the story mapping worksheet.		
RT will engage students in identifying the elements of the story mapping.		
RT and students will collaborate and brainstorm about the story.		
RT will encourage students to take notes during the brainstorming process.		
RT will instruct students to read the prompts in the story mapping while reading the story.		
RT will help students complete the story mapping during the reading and brainstorming about the story.		
RT will instruct students to complete the first worksheet of the story mapping having them identify the title and author of the story; three characters, setting, problem, four events, and solution (C.009.SSI, same as the baseline worksheet, redo and discuss it)		
RT will discuss the story with students by having students show evidence from their reading on how they arrive to their responses. Afterwards, collect this first worksheet. Instruct students to pair in two to work together to complete the second story mapping worksheet identified as C.009.SS2 or B.		
RT will show and instruct students to complete the second story mapping worksheet by identifying the title, author, setting with prompts of where and when, characters, problem, five events, and solution by having students to work in pair group.		
While working in pair, students will be instructed to raise their hands if they need help and when finish completing the second story mapping worksheet. The RT and students will discuss the task by having them share their findings on how they come to their responses, and discuss students' understanding of the story. Afterwards, RT collects the worksheets. Researcher assistant record data.		
The RT will instruct students to complete the third story mapping worksheet identified as C.009.SS3 or C. The worksheet will be introduced and students will complete it individually using the same book.		
RT will discuss and explain the third story mapping worksheet by having students answer the following questions: Who are the important characters in the story? Who is your favorite character and why? What is the setting of the story? What is the plot of the story? What is the problem in the story? What is the theme of the story? What is the solution to the problem? What is another way the problem could have been solved?		
RT will discuss this third story mapping and help students fully understand the story.		

After discussion of the third story mapping, a blank story mapping worksheet will be completed by student as the last task for this instruction.		
RT will collect the materials and Researcher student will record data and analyze them.		
The CBM-Maze will be administered and scored.		
I will enter the score in graph and visually analyzed the outcome.		

THE READING COMPREHENSION INTERVENTION PACKAGE (RCIP)		
<i>Vocabulary Acquisition and Writing "How Scientists Work"</i>		
EXPLAINING TASKS		
During the vocabulary acquisition step the RT and participants read the second book, <i>How Scientists Work</i> .	Yes	NO
The RT explained the tasks by using the word knowledge first. The word knowledge worksheet helped participants identify and learn the unknown words in more detail. The word knowledge worksheet helped each participant understand the unknown words from the storybook.		
The word knowledge worksheet had four columns in which participants marked with an x each word they knew. In the first column participants wrote the word or unknown words. The second column heading is: "I know what this word means." The third column is: "I have seen or heard this word," and the fourth column is: "I don't know what this word means."		
At the bottom of the word knowledge worksheet, participants checked off boxes indicating whether they had practiced saying each word aloud and practiced spelling each word aloud.		
After participants completed the word knowledge worksheets, a discussion took place.		
After participants marked the words they did and did not know, they used a dictionary to find the meaning and write a sentence about the word.		
The participants then reflected and wrote a sentence containing the unknown word. The participants used the word wrap to continue this lesson.		
After discussion, the RT explained how to use the word wrap worksheet (see Appendix A). The students had pencils, chart paper, word wrap, and word knowledge student worksheets to complete this task		
Participants used the word wrap sheets to write down unknown words. They then found the word meanings using dictionaries.		
The participants answered the questions in the word wrap worksheet that pertained to the unknown word. The first word wrap sheet, which is identified as V.017.SS1, contains questions such as, "what's this?" and "what is it like?"		
The participants wrote their answers on the word wrap worksheet. The participants also provided non-example and developed a sentence about the unknown word		

After completing this first word wrap worksheet, the RT and participants discussed the unknown word and repeated the task by using the second word wrap worksheet, which is identified as V.017.SS2.		
On the second word wrap worksheet, students are asked to write the unknown word and answer three questions (a) "what are some examples?" (b) "what is it?" and (c) "what is it like?"		
Participants completed the second worksheet and the RT then facilitated a discussion with them		
After discussion, the RT instructed participants to keep their worksheets in folders with their names written on them and to put the folders on the side of their desks.		
MODELING TASKS		
The RT introduced the next step of vocabulary acquisition, which was modeling.		
RT created a modeled poster paper that includes sample of the completed work task from the word wrap		
A discussion of what has been learned was conducted, and then the RT read the second book again aloud and discussed with students what they had learned so far from the first step.		
After re-reading and discussing the second book, the RT instructed participants to complete the word wrap and word knowledge worksheets on their own.		
The RT posted completed word wrap and word knowledge worksheets as models for students so they could complete the task with minimal guidance.		
After participants completed the word knowledge and word wrap worksheets on their own, they discussed what they had written on the worksheets.		
The RT conducted a discussion that focused on the unknown words, as well as what participants had written on their word wrap worksheets, to review what they had learned so far.		
After discussion, the RT instructed participants to gather into two groups of four for the third step, which was the collaborative task.		
COLLABORATIVE TASKS		
During the third task of vocabulary acquisition and writing, the RT had participants work in groups in which they collaborated to repeat the tasks presented above.		
The participants read the second book on their own and completed the word wrap and word knowledge worksheets together.		
Participants were provided a sample the writing persuasive letter worksheet, which can be in Appendix A. The RT explained how to use this worksheet, and participants then completed the collaborative task. <i>The writing persuasive letter is a graphic organizer that encourages participants to collaborate and share their ideas about the meaning of the unknown words in the story. The letter also provides participants an opportunity to apply the</i>		

<i>skills they had just learned. The group worked for 30 minutes to complete this task, and the RT monitored this activity.</i>		
The RT and participants discussed their experiences and the RT encouraged participants to make inferences about the story, and then write a summary of the story using the writing persuasive letters worksheet.		
The RT collected the worksheets and instructed participants to get ready for an individual task, which was the fourth step of the vocabulary acquisition and writing step.		
The RT posted the group work (the word wraps, word knowledge, and the writing persuasive letter) on the board so participants could use it as a guideline when completing the individual task.		
INDEPENDENT TASKS		
During the fourth task of vocabulary instruction, students repeated the task of reading the second story on their own.		
After reading the story, participants completed the word wrap, word knowledge, and write a persuasive letter tasks using what they had learned during the vocabulary acquisition instruction		
In addition to using the examples of the group work posted by the RT, participants were allowed to use their previous work as guidance while completing the independent task.		
The RT monitored the activity until participants completed this step.		
Participants' worksheets were then collected, and the RT ended the vocabulary acquisition and writing instruction.		
The CBM-Reading Maze was administered to all participants and the building reading fluency was introduced. I helped by scoring the Maze and entering scores in the Aimsweb database.		
<i>Repeated Reading For Reading Fluency and Writing</i>		
The RT read the third book aloud to participants in a group setting and solicited input from participants about words they did not understand and wrote them on the board.		
The RT then asked participants to complete the word wrap and word knowledge worksheets. Afterwards, the RT and participants discussed what the participants had written on their word wrap and word knowledge worksheets		
GROUP READING TASKS		
After the discussion, the RT conducted a group reading session in which each participant read a paragraph. The group reading session continued until the entire book had been read.		
During group reading activities, the participants and the RT engaged in the following reading strategies: answering questions, paraphrasing, making inferences, clarifying, and summarizing the story		
After the group reading was completed, the read and ask worksheet was distributed. The purpose of completing the read and ask worksheet was to		

monitor participants' understanding of the third storybook.		
The RT engaged participants through questioning and answering using the question cube from the read and ask worksheet.		
The participants answered the following questions to clarify the story and to teach them how to make inferences. <i>The questions in the read and ask worksheets consist of the following: "What do you think is going to happen next? Did you understand what you just read, why or why not? Discuss any words that you may not have known. What you just read, how does it relate to your own life? Based on what you read, what are you curious or interested in knowing more about the story?" and "Summarize what you just read."</i>		
After participants completed the read and ask worksheet, the RT discussed the worksheet and engaged participants in brainstorming and collaboration utilizing the questions above.		
Afterwards, the RT and participants followed the question cube instructions to prepare them for peer reading. The questions contained in the cube are the same questions used in read and ask worksheet.		
After the RT and participants completed reading the instructions for the question cube and evaluated their responses, the RT instructed participants to work in pairs so that peer reading could be implemented.		
PEER READING TASKS		
In peer reading, participants took turns reading the third storybook. The RT provided instructions about what had to be done in this task.		
The RT and participants practiced together to help familiarize themselves with the worksheets.		
The participants worked on the <i>read and read</i> worksheets to help monitor their reading fluency. Each participant recorded his or her word read correct per minute (wcpm).		
Participants switched back-and-forth, taking turns reading and monitoring one another's progress. The goal was for participants to identify how many words they can read correctly per minute.		
Participants timed their repeated readings and graphed words read correct per minute using the read and read worksheets, which can be found in Appendix A		
After peer reading, the RT repeated the question cube activity to facilitate discussion and monitor for understanding.		
The RT then instructed participants to complete the retell-a-story worksheet, which is identified as C.009.SS, so that the individual reading could be implemented. <i>The retell-a-story worksheet is a graphic organizer that focuses on participants' retelling the story</i>		
On the retell-a-story worksheet, the participants were asked to identify the title, author, and story sequence such as beginning, middle, and end of the third storybook.		
At the beginning section, participants retold the story by doing the following:		

identifying and writing who the main characters were; explaining where and when the story took place, and describing what happened in the beginning of the story.		
In the middle sequence section, participants retold the story by answering the following questions: "What happens in the middle of the story? What is the problem? What does the main character do?" At the end sequence section, participants retold the story answering the following questions: "How was the problem solved? How does the story end?"		
INDIVIDUAL READING TASKS		
Finally, students engaged in individual reading sessions. Each student read the third storybook, <i>The Country of Chile</i> , individually and silently		
The RT instructed students to repeat the tasks that were completed in the group reading, and then facilitated discussions of what they had learned during group reading in order to review the previously learned materials.		
During this individual reading, students read the story on their own after reviewing the previously learned materials.		
The students completed the word knowledge, word wrap, and read and ask worksheets, and recorded their reading in the read and read worksheet (F.025.SS1) under the second reading section.		
Afterwards, participants completed the retell-a-story worksheet based on their understanding of the third storybook. The participants were allowed to use their previous work as a guideline while working independently.		
The RT monitored the participants' independent work and was available to answer questions to help students understand more about the given task.		
After participants completed the individual reading, discussion and brainstorming was once again facilitated.		
The RT instructed participants to write a persuasive letter based on what they had learned from the tasks related to the third storybook.		
Students were encouraged to paraphrase and summarize what they had read. Afterwards, the RT collected all participants' work and set it aside for later review.		
Participants were instructed to read the third storybook.		
Using the read and read again worksheet (F.025.SS1) under the third reading section to record individuals' reading words per minute, the RT and I timed the participants while they were reading.		
With my help, the RT conducted a brief discussion just to provide feedback on the participants' performances on this reading.		
Afterwards, worksheets were collected and the RT administered the CBM-Reading Maze to the group.		
FINAL STAGE OF THE RCIP		
The final stage of the RCIP was to integrate everything the participants had learned during the intervention. Students read the third story book again, <i>The County of Chile</i> ."		
The RT once again instructed students to complete the story-mapping		

worksheets. The RT provided only minimal guidance during this instruction, since the story mapping instruction has been done at the beginning. Students were allowed to use their previous work to complete this task.		
Afterwards, the RT administered the CBM-Reading Maze to conclude the intervention. I scored the data and entered them in the AIMSweb database.		

Appendix C: CBM-Reading Maze Administration and Scoring

CBM-Reading Maze Administration

CBM-Maze: Description

CBM-Maze passages are timed (3-minute) reading comprehension assessments with a multiple-choice response format. The student reads and completes the passage silently. CBM-Maze can be administered to a single student, a small group, or an entire class (Espin et al., 2010).

CBM-Maze: Materials

The following materials are needed to administer CBM-Maze passages:

- Student and examiner copies of CBM Maze passage (the process for creating Maze passages is described below)
- Stopwatch
- Pencils for students

CBM-Maze: Preparation

Before administering CBM-Maze, the teacher creates or obtains a Maze passage, using these guidelines (Espin et al., 2010):

- Passages used for Maze should provide sufficient reading material to occupy students for 3 minutes of silent reading. Samples should be at least 300 words in length.
- The first sentence of the Maze passage is left intact.
- In the text following the first sentence, every seventh word is selected to be incorporated into a response item that consists of the original word plus two foils (words that would not make sense if substituted in the passage in place of the original, correct word). These three choices are randomly arranged and inserted back into the text.

Here is a sample of a Maze response item: The rain (sang, cement, fell) on the garden.

CBM-Maze: Directions for Administration (adapted from Sarasti, 2009)

1. The examiner distributes copies of CBM Maze probes to all the students in the group.
2. The examiner says: "When I say 'begin', start reading the story silently. Wherever you come to a group of 3 word-choices, circle the word that makes sense. Work as fast as you can but do your best work. If you finish the first page, go to the next page and continue working until I tell you to stop."
3. The examiner says: "Ready? Begin" and starts the stopwatch.
4. After 3 minutes, the examiner stops the stopwatch and says: "Stop. Pencils down".
5. These directions are repeated for each Maze passage administered in a session. The examiner then collects and scores the passages.

6. Initial Assessment: If the examiner is assessing the student for the first time, the examiner administers a total of 3 Maze probes during the session, using the above procedures and takes the median (middle) score as the best estimate of the student's reading-comprehension skills.

Progress-Monitoring: If the examiner is monitoring student growth in computation (and has previously collected Maze data), only one Maze probe is given in the session.

CBM-Maze: Directions for Practice

If students are not yet familiar with the Maze, use the Maze practice page and accompanying examiner directions appearing later in this document to ensure student understanding of the activity before administering the assessment.

CBM-Maze: Directions for Practice (adapted from Sarasti, 2009)

If students are not yet familiar with the Maze, use the Maze practice page and these examiner directions to ensure student understanding of the assessment activity:

1. The examiner hands out copies of the Maze practice page to students.
2. The examiner says: "We will practice a story together. Look at the practice page. Read the first sentence to yourself while I read it aloud:

The rain (sang, cement, fell) on the garden. The three choices are sang, cement, fell. The rain sang on the garden. That sentence does not make sense. The rain cement on the garden. That sentence does not make sense. So the correct word to circle is fell."

[The examiner scans the group to ensure that all students circle the correct word before continuing.]

3. The examiner says: "Now go to the next sentence on the practice page. Read it to yourself while I read it aloud:

The teacher walked (quickly, blue, trust) down the hall. Which word is the correct choice to complete the sentence?

[Ensure that students chorally give the correct response before continuing.]

That's right: The teacher walked quickly down the hall is correct, so circle the word quickly."

4. The examiner says: "Now read the next sentence on your practice page to yourself. Raise your hand when you have the answer.

[When students are ready, the examiner reads the practice sentence with correct answer: The ship sailed (blank, toward, eight) the port.]

Yes, the correct sentence is : The ship sailed toward the port. Now that you have chosen the correct word, what do you do?"

[The students should say "Circle it." The examiner ensures that all students fully understand the Maze response task.]

Yes, you circle the correct word. You are ready to do the next story on your own."

More Practice CBM-Maze Sample if Needed

1. The rain (sang, cement, fell) on the garden.
2. The teacher walked (quickly, blue, trust) down the hall.
3. The ship sailed (blank, toward, eight) the port.

CBM-Maze: Scoring Guidelines

The examiner adds up the total number of correct responses, giving the student credit for each Maze choice-item in which the correct word is circled.